

STATE OF CALIFORNIA
STATE WATER RIGHTS BOARD

In the Matter of Applications)	Source: Santa Clara River,
12092 and 15145 by)	Piru Creek, and
United Water Conservation District)	Sespe Creek
and Applications 13417, 13417A,)	
and 13418 by)	County: Ventura
Calleguas Municipal Water District)	Decision No. 884

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Decision No. 884

Decided: January 15, 1958

Appearances at Hearing Conducted at Ventura on April 16-26,
June 10-21, and July 22-24, 1957, by Henry Holsinger, Chairman,
and John B. Evans, Member, State Water Rights Board.

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DECISION

SUBSTANCE OF THE APPLICATIONS

United Water Conservation District

Application 12092 was filed in preliminary form on September 18, 1947, by Santa Clara Water Conservation District, predecessor to United Water Conservation District (hereinafter called "United"). The application was subsequently assigned to United and was amended and completed. The amended application seeks a permit to appropriate unappropriated waters of Santa Clara River and Piru and Sespe Creeks, major tributaries thereof, for domestic, municipal, industrial, and irrigation purposes within the district. The sources named and the respective amounts of water to be diverted year-round therefrom are as follows:

<u>Source</u>	<u>Direct Diversion cfs</u>	<u>Storage Acre-feet per annum</u>	
		<u>Surface</u>	<u>Underground</u>
Piru Creek at Blue Point Reservoir		100,000	
Piru Creek at Santa Felicia Reservoir		150,000	
Piru Creek at Piru Spreading Grounds and underground storage in Santa Clara Valley	80		
Sespe Creek at Cold Spring Reservoir		400,000	
Sespe Creek at Hammel Reservoir		30,000	
Sespe Creek at Topatopa Reservoir		100,000	
Santa Clara River to Piru Basin			60,000

<u>Source</u>	<u>Direct Diversion cfs</u>	<u>Storage Acre-feet per annum</u>	
		<u>Surface</u>	<u>Underground</u>
Santa Clara River to Fillmore Basin			50,000
Santa Clara River to Santa Paula Basin			70,000
Santa Clara River to Montalvo Basin	<u>375</u>	<u> </u>	<u>89,000</u>
Totals	455	780,000	269,000

Of the 375 cfs to be diverted to Montalvo Basin, 75 cfs is to be at times diverted for direct irrigation use; and both natural flow and stored waters are to be induced to percolate into the aforementioned basins and are then to be extracted for beneficial use throughout the district.

The locations of the storage and diversion works by reference to the public land survey or projection thereof are as follows:

<u>Feature</u>	<u>Location referred to SBB&M</u>
Blue Point Dam	Section 10, T5N, R18W
Santa Felicia Dam	Section 3, T4N, R18W
Diversion to Piru Spreading Grounds	Section 20, T4N, R18W
Cold Spring Dam	Section 6, T5N, R22W
Topatopa Dam	Section 36, T6N, R20W
Hammel Dam	Section 2, T4N, R20W
Diversion to Montalvo Basin at Saticoy headworks	Section 31, T3N, R21W (Projected)
Piru, Fillmore, Santa Paula, and Montalvo Basins	Underlying the Santa Clara Valley in their progressive downstream occurrence between the eastern boundary of United and the Montalvo Bridge at U.S. Highway 101

Attached to Application 12092 is a description of the "General Operation Plan", which reads in part as follows:

"A. Project procedures and criteria

By means of hydrologic studies reported in Hydrologic Investigation of the Water Resources of the United Water Conservation District, 1951-1953, it was found that the greatest possible conservation would be achieved by operating the surface reservoirs to provide maximum benefits to the Coastal Plain. A program that would maintain the Valley Basins at high levels by the use of stored water would in the end defeat its purpose as the basins would not have any available storage space...for the percolation of flood waters. The amount of percolation can be partially controlled by regulating the rate of discharge from the reservoirs inasmuch as the percolation is a function of the discharge. The ground water levels in the Piru Basin can be further controlled by use of the Piru spreading grounds....

"By means of the diversion works, the spreading grounds, and the wells for the municipal line, the Montalvo Basin can be operated as a reservoir. To provide against excessive drawdowns, agricultural surface diversions will be cut off when the available underground storage reaches 45,000 acre-feet. If the levels continue to go down, the municipal pumping will be shut off at 63,000 acre-feet storage level. To provide sufficient head for a continuous seaward movement of ground water, the levels

in the Montalvo Basin should generally be kept at 25 feet elevation above sea level or higher.

"B. Scarification

Studies...indicate that scarifying the streambed of the Santa Clara River should increase the percolation as much as 350 percent for all but the large floods...."

Application 15145 filed January 5, 1953, proposes the year-round appropriation of 500 cfs by direct diversion and 100,000 acre-feet per annum by storage at Santa Felicia Dam and Reservoir on Piru Creek for hydroelectric power purposes. The water is to be returned to Piru Creek at the power plant located immediately downstream from the dam.

Calleguas Municipal Water District

Applications 13417, 13417A and 13418 were filed in preliminary form on October 25, 1949, by Ventura County Flood Control District and were subsequently assigned to and completed by Calleguas Municipal Water District (hereinafter called "Calleguas"). They propose the year-round appropriation of the unappropriated waters of Sespe Creek for domestic, municipal, and recreational purposes, for irrigation and incidental domestic purposes, and for industrial purposes, respectively. The amounts to be diverted under each of the applications at the several points of diversion on Sespe Creek are as follows:

<u>Source</u>	<u>Direct Diversion cfs</u>	<u>Storage in acre-feet per annum</u>	
		<u>Onstream</u>	<u>Offstream</u>
Sespe Creek at Cold Spring Dam		160,000	
Sespe Creek at Coltrell Dam		150,000	
Sespe Creek at Tar Creek Diversion Dam	200		300,000*

* To be diverted to offstream storage in Tierra Rejada Reservoir on Arroyo Santa Rosa at a maximum rate of 400 cubic feet per second.

With reference to the public land survey or projection thereof, the locations of the aforementioned diversion works are as follows:

<u>Point of Diversion</u>	<u>Location of Point of Diversion referred to SBB&M</u>
Cold Spring Dam	Section 6, T5N, R22W
Coltrell Dam	Section 33, T6N, R20W
Tar Creek Diversion Dam	Section 26, T5N, R20W (Projected)
Tierra Rejada Dam (offstream storage)	Section 16, T2N, R19W

Direct diversion, diversion to offstream storage, and rediversion of waters stored in Cold Spring and Coltrell reservoirs are to be effected at Tar Creek Diversion Dam and conveyed by a conduit system to Tierra Rejada Reservoir where they are to be impounded and regulated for use within Calleguas and, if possible, a portion thereof may also be used by the adjacent Coastal Plain area within United.

Protests and Answers

Application 12092

On September 28, 1955, Calleguas offered a written protest against Application 12092 maintaining that approval thereof would result in injury to Calleguas and asserting a claim of right based upon Applications 13417, 13417A, and 13418. In support of its protest Calleguas further alleged, in substance, that both it and the applicant are water districts within Ventura County; that the portion of the county within Calleguas is suffering from a great water shortage and must secure a source of water supply; that it looks to the unappropriated water covered by Application 12092 for such supply; that the exact amount and method of use of such water by Calleguas could not then be stated but would have to await completion of a feasibility report being prepared by the United States Bureau of Reclamation which would require approximately two years.

On October 27, 1955, Calleguas was advised by the former State Engineer that for failure to comply with the administrative requirements of a valid protest, Applications 13417, 13417A, and 13418 being subsequent in time to Application 12092, the protest was adjudged insufficient; that, however, Calleguas would be allowed to present its views at a hearing of Application 12092 and have them fully considered in the final decision.

In answer to the protest of Calleguas, United alleged that by reason of Application 12092 being prior in time to the applications of Calleguas, they "do not attach to the water to which Application 12092 attaches" and, therefore, "the protest is

meaningless and invalid"; and that lack of diligence in prosecuting completion of the Calleguas applications probably invalidates them.
Applications 13417, 13417A, and 13418

A total of 263 individual protests by various water districts, corporations, municipalities, water companies, private individuals, etc. were received against Applications 13417, 13417A, and 13418.

United Water Conservation District protests the approval of these applications alleging, in substance, that its Application 12092 is prior in time; that there is insufficient water in Sespe Creek to satisfy applications of both districts; that Calleguas would export water outside the watershed which was itself an area of present overdraft and ultimate water deficiency; that all the conservable water of the Santa Clara River watershed, including that proposed to be exported by Calleguas, is needed to replenish ground water and to maintain its quality within the watershed and within United; that the water sought by Calleguas belongs to riparian and overlying owners in the watershed and is essential to the continued existence of an established economy and to the natural growth of the area. The protest alleges a prior right based on Application 12092 and upon the statute creating the United District (D.A. 9127c). The protest further alleges as follows:

"United Water Conservation District has a conservation plan for conserving the natural waters of the Santa Clara River watershed. As part of this plan, Santa Felicia Dam, diversion works and conduits, and spreading grounds have been constructed, maintained, and enlarged. Future plans call for step-by-step development of water in the watershed to the point where all of the economically conservable water is conserved for use within the District, including the water sought in the protested application. Studies show that, because of historical overdraft and present

annual overdraft, and because of future growth, all of the economically conservable water within the watershed will be required for use within the District, and that, even after all of the economically conservable water has been conserved, United will be required to import water. The loss of any water through export will endanger the established economy of the United Water Conservation District.

"These waters have been enjoyed by landowners within United's boundaries since 1829 for all purposes.

"The present and past use of water by protestant or his predecessor in interest from this source is as follows: United's predecessor, Santa Clara Water Conservation District, began diversions in 1928 for the replenishment of ground water. This work was done through the construction of diversion works and spreading grounds. The capacity of the Saticoy Spreading Grounds in 1928 was 90 acre-feet per day. These works have been expanded and new works built at El Rio so that the present combined capacity is approximately 830 acre-feet per day. Amounts actually diverted at the Saticoy diversion from stream flow have varied from a low of zero acre-feet to a high of 24,410 acre-feet per water year depending upon the amount of surface flow.

"Piru Spreading Grounds near Piru, California, was constructed in 1931, and at that time had a capacity of 160 acre-feet per day. It now has a capacity of 160 acre-feet per day."

The California Department of Fish and Game protests approval of the Calleguas applications upon the basis of Section 525 of the Fish and Game Code*, alleging that the proposed appropriations will result in "destruction of trout and steelhead property of the State because the amount of water to be diverted is greater than the known minimum flow of the stream at times", and that "resident trout and steelhead are present in these streams and are planted regularly by the State".

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*Section 525 of the Fish and Game Code provides:

"The owner of any dam shall allow sufficient water at all times to pass through a fishway, or in the absence of a fishway, allow sufficient water to pass over, around or through the dam, to keep in good condition any fish that may be planted or exist below the dam..."

Other protestants against the Calleguas applications assert prior correlative, prescriptive, and appropriative rights to the waters of the ground water basins supplied by the Santa Clara River system and riparian and appropriative rights to the surface flow thereof. They allege that they have formed the United Water Conservation District to develop the water sought to be appropriated by storing it in the underground reservoirs whereby it may be shared by all users within the United District; that subterranean reservoirs underlie most or all of their lands in the Santa Clara Valley which are common sources of water supply; that these reservoirs are replenished by the natural flow of the Santa Clara River system; that the subterranean reservoirs constitute one interrelated water system; that action cannot be taken with regard to exporting the surface flow from Sespe Creek without considering the effect upon those who have the right to take water from any part of this system including the river and connecting underground basins; that the underground water supply is presently depleted, and this depletion must be replaced so that water will be available not only for present uses, but also for normal expansion of these uses to the limits of their correlative rights; that the entire flow of Sespe Creek is required to dilute the accumulation of salts in the ground water reservoirs to maintain the quality of the underground water; that all the waters of Sespe Creek are necessary to supply the present and future needs of the watershed of origin; that no one should be allowed to appropriate water therein for export; that even those who take or are entitled to take water of the Santa Clara River above the point where Sespe Creek enters the

river will be affected by the loss of any Sespe Creek water because when there is less water in the underground basin below the Sespe, the underground water drains out faster from beneath the land above the Sespe, and because the water available to satisfy the correlative rights of all owners is diminished; that studies of the water requirements of the United District agree that all of the water which can be conserved in the Santa Clara River watershed will be needed by the United District; that over large areas of the United District ground water levels have fallen to alarming low points; that salt water intrusion has already become evident in the coastal area and there is now urgent need for the waters which the United District proposes to conserve in the Sespe Creek watershed; that the time of diversion and amounts used varies with years of light or heavy rainfall; that irrigation occurs intermittently from early spring to late fall, and frequently in the winter months; that water is used for irrigation and domestic purposes the year around; that protestants are entitled to a proportionate share of the water available not only for present use but for future expansion; that present uses of water by the various protestants are domestic, industrial, stockwatering, municipal, and the irrigation of citrus, walnuts, avocados, lima beans, and various field crops.

In answer to the aforementioned protests to its Applications 13417, 13417A, and 13418, Calleguas denies that its proposed appropriations will result in any injury to the water rights of protestants (whether riparian, prescriptive or correlative), in surface or underground waters, either as to quantity or quality, presently used or to be used in the future, for any useful

or beneficial purposes on the land described in said protests. Calleguas further answers by denying that the subterranean reservoir under the Santa Clara River is materially replenished by the water applicant proposes to appropriate or that there will be any material or substantial diminution of protestants' supply of underground water, either present or future, by the exercise of said appropriation by applicant, or that there is presently any material accumulation of salts in the underground supply of water of the Santa Clara River Valley, or that the full flow of Sespe Creek is required to dilute any accumulations of salt in the underground reservoir or reservoirs beneath the lands of protestants to maintain the present quality of said water.

In reply to the specific allegations by United, Calleguas alleges:

"That at the present time Calleguas is dependent solely upon underground waters within its boundaries for domestic and irrigation purposes; that it is presently experiencing a critical water shortage and overdraft, and its most feasible source of relief therefrom is the unappropriated waste and surplus waters of the Sespe Creek.

"...that the waste water (of the Santa Clara River system) that is permitted by protestant and others to flow unused into the sea is 152,400 acre-feet annually; that Calleguas has planned...to appropriate this waste...by the building, preferably as a joint venture with United, of one or more dams on Sespe Creek of adequate capacity to store and utilize said waste...to...be conveyed...to storage in Tierra Rejada...

from which point it is planned to distribute the same not only to Calleguas, but also to any portion of the United Water Conservation District...which is naturally tributary to Calleguas.

"...that there are sufficient unappropriated waters of the Santa Clara River...which can be conserved for the joint beneficial use of both United...and Calleguas if their joint development is carried out...pursuant to said plans of Calleguas.

"That...there will remain in the Santa Clara River Valley more of said waters than are required to supply the needs of United; and that the proposed use by Calleguas of said waste water will not adversely affect the natural growth, existence or continued economy of the area contained in the United Water Conservation District to any greater extent than any plan or plans proposed by United.

"...that United's proposed development of water will result in continued and enlarged wastes to the ocean.

"That United District does not overlies an underground water basin having in its entirety a common source of supply with each locality within its area, but, on the contrary, a large portion of the Oxnard Plain and Pleasant Valley areas included within its boundaries are dependent upon waters originating within the boundaries of Calleguas.

"That certain portions of lands in the...Oxnard Plain and all of the lands in the Pleasant Valley receive little or no benefit...from the spreading grounds...located at Piru

or Saticoy...that the beneficial effects of the spreading grounds at Piru do not extend below the City of Fillmore....

"...that under the joint venture plan proposed by Calleguas said waters can be more economically saved and delivered...than under any plan proposed by United;...that said joint venture plan...would best conserve and utilize in the public interest the water sought to be appropriated; and would furnish a firm and economical supply of water each year to the Pleasant Valley-Oxnard Plain areas...."

Calleguas further answers United in effect that by reason of alleged defects in the filing and amendment of Application 12092, the alleged impotency of United's predecessor, Santa Clara Water Conservation District, to raise adequate funds for construction of the project works required, and the alleged lack of intent to proceed with due diligence, said Application 12092 as amended is not superior in time and right to the applications of Calleguas; and that the Calleguas plan is most compatible with the public welfare and will assure the successful operation of the California Water Plan.

In answer to the objections of individual protestants whose lands lie above the mouth of Sespe Creek, Calleguas alleges that they would not be affected by any diversions from that stream.

No protests were filed against Application 15145.

Hearing Held in Accordance with the Water Code

Applications 12092, 15145, 13417, 13417A, and 13418 were set for public hearing under the provisions of the California Administrative Code, Title 23, Waters, before the State Water Rights

Board (hereinafter referred to as "the Board"), on Tuesday, April 16, 1957, at ten o'clock a.m., in the Masonic Temple, Ventura, California. Of the hearing the applicants, protestants, and other interested parties were duly notified. The hearing extended from April 16 through April 26, June 10 through June 21, and July 22 through July 24, 1957.

The Issues

No objections are advanced to approval of those portions of United's application* which do not involve the waters of Sespe Creek.** The conflict concerns these waters since the applications of Calleguas seek appropriation only from this source and are in direct opposition to those features of United's application which propose storage at Topatopa. It is further contended that the Calleguas Project would adversely affect other features of United's plan for ultimate development of the waters of Sespe Creek.

As a prerequisite to approval of any of the pending applications, it must be shown that unappropriated water is available to supply the applicant and that the intended uses are beneficial (Water Code Section 1375). Both applicants propose similar uses of water and there is no question that those uses are beneficial; nor is there a question that there is unappropriated water. This is expressly admitted by the applicants in their respective applications, is admitted in effect by the protestants

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* Since no objections to Application 15145 were presented, reference herein to "United's application" is to Application 12092 unless otherwise noted.

** Conditions requested by the Department of Fish and Game are considered separately.

who urge approval of United's application, and is borne out by uncontroverted evidence submitted at the hearing.

In addition to showing that there is unappropriated water, it must also be established that such waters may be appropriated in the manner proposed without substantial injury to prior vested rights. As was said by the Supreme Court in Meridian, Ltd. v. San Francisco, 13 Cal. 2d. 424, it is the first duty of the Board in performing its functions to protect existing rights. Since those who are presently entitled to the use of Santa Clara River water have not protested the United application and many actively support it, this required showing is of particular significance to the applications of Calleguas. If it be found that either applicant could appropriate water of Sespe Creek substantially in the manner proposed without injury to vested rights, then the final issue to be determined by the Board is which applicant has shown the better right to proceed. Of relevance to this issue is the priority of right accorded by law to an application together with the broad discretion of the Board to determine whether a proposed appropriation will best conserve the public interest (See Water Code Sections 1253, 1255, 1257; Temescal Water Co. v. Department of Public Works, 44 Cal. 2d. 90). The effect of the cited code sections and Supreme Court decision is that although an application secures to the applicant a priority of right as of the date of the application until it is approved or rejected (Water Code Section 1450), if the Board determines that a conflicting application subsequently filed best conserves the public interest, it must prefer the later one.

Many of the allegations contained in protests filed against approval of the Calleguas applications indicate a misapprehension concerning the scope and extent of protestants' alleged rights to the use of water. In some instances protestants have confused their rights to the continued surface and subsurface supply of water to their lands as it exists in a state of nature without interference by subsequent appropriators, on the one hand, with the additional benefits and increments in water supply which they anticipate would result to them from the artificial storage and regulation of stream flow by United under its application. The first is a vested property right which is entitled to full protection against the acts of would-be appropriators. The second merely characterizes protestants as the beneficiaries of United's proposed appropriation and entitles them to be heard in favor thereof. In other words, in determining whether the Calleguas appropriations would substantially impair vested rights, the Board can properly consider only whether they would unduly interfere with the natural water supply available to protestants--not whether such appropriations would deprive them of future benefits to result from the appropriation proposed by United.

The following portions of this decision include a summary of the evidence presented at the hearing and a discussion thereof in light of the foregoing statement of the primary issues. Numerous special issues will also be discussed and determined.

Location of the Project Areas

The areas under consideration include the valley of the Santa Clara River between the Los Angeles-Ventura county line and the Pacific Ocean, the Coastal Plain Area lying west from the Los Posas and Camarillo Hills and south from the Santa Clara River to the Ocean and the interior drainage of Calleguas Creek lying east from the Coastal Plain and south from the Santa Clara Valley. The Coastal Plain is divided into two areas: the Oxnard Plain, a triangle-shaped area with the northern vertex near Saticoy and the legs formed by the seacoast, the Santa Clara River and a line extending southerly from Saticoy to the sea with an areal extent of about 46,460 acres; and Pleasant Valley, located east from the Oxnard Plain with an areal extent of about 23,850 acres.

Description of the Santa Clara River System

The Watershed

The Santa Clara River drains 1651 square miles within a northwesterly portion of Los Angeles County, and the northerly portion of Ventura County. Of chief concern is the drainage within Ventura County from which the predominant runoff originates and within which the points of diversion of the projects herein described are to be located. From Blue Cut near the Los Angeles-Ventura county line the main stem of the Santa Clara River flows in a westerly course adjacent and parallel to the northern flank of its southern watershed boundary for about 32 miles to the Pacific Ocean. The southern boundary is formed by the Santa Susana

Mountains and westerly extensions thereof known as Oak Ridge and South Mountain -- narrow elongated ranges of hills extending to the vicinity of Saticoy. From South Mountain the boundary continues across the flood plain parallel to the course of the Santa Clara to the sea (United Exh. 8). Principal tributaries, all joining the Santa Clara from the north, are Piru, Hopper, Sespe, and Santa Paula Creeks.

Underground Reservoirs

The valley of the Santa Clara in Ventura County is underlain with deep, porous alluvial gravels which constitute extensive underground reservoirs in hydraulic union with the surface flows of the Santa Clara River downstream to Montalvo Bridge on U. S. Highway 101. From the bridge to the ocean, a distance of about 3 miles, the alluvium is covered with a clay cap which effectively severs hydraulic connection with the surface flows. This clay cap also extends southerly over the entire Coastal Plain.

The open alluviums lie within four subbasins extending from the Los Angeles-Ventura County line to Montalvo Bridge. These subbasins, all in hydraulic union, are named in their downstream order, Piru, Fillmore, Santa Paula, and Oxnard Forebay (also called Montalvo) having surface areas of 6,520, 16,870, 13,520, and 6,170 acres, respectively. Downstream from the bridge the Valley alluviums are confined by the clay cap and yield artesian waters. This area extending to the ocean is known as the "Mound Pressure Area" with an areal extent of about 12,300 acres.

Perennial subsurface flows occur through the Valley alluviums moving downstream in the direction of the water table slope and resulting in subsurface outflow to the sea through the Mound Pressure Area. Constrictions in the cross-sectional area of the alluviums underlying the channel of the Santa Clara River somewhat arbitrarily mark the boundaries of Piru, Fillmore, and Santa Paula subbasins. These constrictions cause abrupt changes in the slope of the water table which, at times, induce the subsurface flows to appear at the surface of the channel. This phenomenon is called "rising water" and is most evident at the lower end of Santa Paula subbasin.

The annual frequency with which Piru, Fillmore, and Santa Paula subbasins fill is not of the same order. Piru subbasin is subject to the greatest fluctuations in storage depletion and depth to the water table and Santa Paula subbasin is subject to the least fluctuations (United Exh. 25, 26, 27). The water input to the alluvium is mostly by percolation of surface flows, deep penetration of rainfall, subsurface outflow from adjacent subbasins and repercolation of excess water applied to overlying lands; and, since 1927 input to Piru subbasin has been augmented by spreading works diverting Piru Creek flows.

The total depth of the alluviums being unknown requires that depths to water table be related to "storage depletion" rather than "storage content" as is the case with surface reservoirs. Such relationships (Plates 29, 30, 31, United Exh. 19A) show approximately that there is in Piru subbasin 65,000 acre-feet of storage capacity within 100 feet of ground surface, in Fillmore

subbasin 60,000 acre-feet of storage capacity within 50 feet of ground surface, and in Santa Paula subbasin 35,000 acre-feet of storage capacity within 50 feet of ground surface. Depletions in storage are caused principally by subsurface outflow, consumptive use of water from pumped extractions and consumptive use of water by phreatophytes. Observations of water levels and storage show that in Spring, 1957, depletions in storage reached maximums of 75,000 acre-feet, 48,000 acre-feet, and 22,000 acre-feet in Piru, Fillmore, and Santa Paula subbasins, respectively. However, under present conditions of utilization and recharge from natural flows, this storage is periodically filled through a sequence of wet years with the attendant fluctuations in water levels as noted hereinabove.

Of special importance is the Oxnard Forebay which in addition to being in hydraulic union with the Santa Clara River also is hydraulically connected to the principal aquifers underlying the Coastal Plain. Flows of the Santa Clara River and from adjacent subbasins naturally percolate into the Forebay in accordance with the water stage in the river and the slope of the ground water table. Water input to the Forebay is also accomplished by deep penetration of precipitation, repercolation of excess water applied to overlying lands and by spreading operations which, since 1928, have artificially percolated more than 300,000 acre-feet of Santa Clara River waters by means of diversion and spreading works at Saticoy.

The Coastal Aquifers

The principal aquifers of the Coastal Plain are a shallow aquifer known as the Oxnard Aquifer which extends under the area designated as the Oxnard Plain (United Exh. 33), and a deeper confined aquifer known as the Fox Canyon Aquifer which underlies the entire Coastal Plain. Both aquifers which yield artesian waters are effectively severed from surface waters on the plain by the clay cap and intermediate layers of relatively impervious materials. These aquifers have contact with the bottom of the Oxnard Forebay alluviums to the extent of a truncated exposure of about 250 acres of the Fox Canyon Aquifer and a horizontal exposure of about 3,000 acres of the Oxnard Aquifer. These contacts form the major source of replenishment to the aquifers. Lying in relatively horizontal layers and separated by impervious silts and clays, interconnections between the aquifers which allow for interchanges of water are effectively limited except for the contact in the forebay and possible limited areas of contact in the western portion of Pleasant Valley which function when pressure levels between the aquifers are favorable.

The Fox Canyon Aquifer

The deeper Fox Canyon Aquifer consists of sands and gravels predominantly of marine origin from which the salt water has been flushed out and replaced with fresh water. It extends virtually uninterrupted underneath the entire Coastal Plain at a depth of about 1,000 feet and the water-bearing strata averages

200 to 500 feet in thickness (Calleguas Exh. 85), and also outcrops within Calleguas District on the southerly flanks of South Mountain and Oak Ridge. According to Bulletin No. 12, "Ventura County Investigation", State Water Resources Board, 1953, (SWRB Exh. 6), the input to the Fox Canyon Aquifer from the forebay averages about 5,000 acre-feet per year. The function of the outcrops within Calleguas District is not clear in view of the sharp disagreement among the parties, but Bulletin No. 12 provides an estimate averaging 3,600 acre-feet per year.

Outcrops of the Fox Canyon Aquifer along the Ventura Hills and the basal exposure to the river alluviums in the Santa Clara Valley are not of importance as a source of replenishment to the portion of the aquifer underlying the Coastal Plain, because of the presence of fault zones which effectively impede the movement of water therein.

The Oxnard Aquifer

Consisting of river alluviums about 50 to 200 feet thick derived from the Santa Clara River and smaller coastal streams to the south, the Oxnard Aquifer extends at relatively shallow depths beneath the Oxnard Plain. The eastern boundary of the aquifer may be considered an irregular line near the border between the Oxnard Plain and Pleasant Valley. Evidences of the aquifer within the confines of Pleasant Valley tend to be separate lenticular bodies or tongues extending from the Oxnard Plain into Pleasant Valley. Because of the nature of these deposits little or no water can enter them or be extracted therefrom.

Col. Harold E. Spickard, Consulting Engineer, testifying for Calleguas, established that the transmissibility of the aquifer is dependent upon the difference between elevations of the unconfined water table in the forebay and pumping levels on the Oxnard Plain, and that depending upon the steepness of the hydraulic gradient, the transmissibility of water varied from 35,600 acre-feet per year maximum to 7,100 acre-feet per year minimum and averaged about 20,000 acre-feet per year for the period 1922 to 1955 (Calleguas Exh. 73, R.T. 4/25/57, p. 892).

Water Supply

Runoff

The flows of the Santa Clara River system are fundamentally derived from rainfall runoff, are erratic in their occurrence and require large storage works for significant amounts of further conservation.

Of importance to the water supply of the Santa Clara River system are surface inflows measured or estimated at points upstream from the underground basins, side underflows from pervious formations outcropping on the foothills between Fillmore and Ventura which are in contact with the bottom of the Valley alluviums, and the unconsumed portion of rainfall on overlying lands which by deep percolation becomes a part of the underground supply. According to United's Exhibit 19A, these items of water supply and their respective mean and extremal seasonal amounts for the period water years*, 1922-23 through 1954-55, are given in Table 1:

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* A water year is the period October 1 of each year through September 30 of the succeeding year.

Table 1

Water Supply Santa Clara Valley, Acre-Feet

<u>Item</u>	<u>Mean</u>	<u>Maximum</u>	<u>Minimum</u>
Total Surface Inflow (1)	166,000	827,100	11,880
Rainfall & Penetration (2)	21,100	93,830	1,170
Side Underflows (3)	<u>19,000</u>	<u>33,600</u>	<u>8,400</u>
Totals	206,100	954,530	21,450

- (1) Table V-4, United Exh. 19A
- (2) Rainfall Penetration under estimate "Ultimate Land Use Pattern", Table V-7, United Exh. 19A
- (3) Table V-8, United Exh. 19A

In general, throughout the period, water year 1950-51 was the driest and water year 1940-41 the wettest. Not all of these waters are subject to capture and regulation by the project works proposed by the parties by reason of downstream requirements for the satisfaction of vested rights, the erratic distribution of runoff in amount and time, the limited capacity of the storage works and the fact that some of the runoff originates below the surface storage and diversion sites.

Of the foregoing supply the portions occurring in mean and extremal amounts at Santa Felicia Dam on Piru Creek and at Topatopa Dam Site and Tar Creek Diversion Dam Site on Sespe Creek are given in Table 2:

Table 2

Runoff at Santa Felicia, Topatopa and Tar Creek
Damsites, Acre-Feet

	<u>Mean</u>	<u>Maximum</u>	<u>Minimum</u>
Piru Creek at Santa Felicia (1)	38,900	220,830	2,410
Sespe Creek at Topatopa (2)	43,580	234,300	2,270
Sespe Creek at Tar Creek (3)	63,390	345,554	3,233

- (1) Column 3, Table V-14, United Exh. 19A
- (2) Table V-5, United Exh. 19A
- (3) Calleguas Exh. 47, "Estimated Undepleted Runoff of Sespe Creek near Tar Creek Diversion Dam Site"

The runoff at the Tar Creek Diversion Dam Site may be considered substantially the same as the runoff at the Hammel Dam Site.

Agreement Among the Parties as to Basic Water Supply Data

A comparison of tabulations of the aforementioned items of water supply as submitted in evidence by the parties shows that they are in substantial agreement.

Historical Waste to the Ocean

Under present conditions of development in the Santa Clara Valley, great quantities of water waste to the ocean during wet periods. All parties agree that the surface flows of the Santa Clara River passing Montalvo Bridge are not feasibly subject to capture and use. The factors which act to decrease the outflow to the ocean are regulation by surface storage and diversion, evaporation losses, input to underground storage in the alluviums of the Santa Clara River Valley, accretions to the Oxnard Aquifer and consumptive use by cropped lands and native vegetation. For

the period water year 1922-23 through 1954-55, measurements of the runoff of the Santa Clara River at Montalvo Bridge are available for only about 6-1/2 years; the remainder must be synthesized (Calleguas Exh. 38). To this end both parties submitted estimates of the surface outflow to the ocean (Calleguas Exh. 39, United Exh. 19, 19-A) as a means of defining the surplus waters and of determining the waters conserved by the works proposed. These estimates are not in entire agreement respecting the annual amounts but do substantially agree with regard to the mean outflow for the period. United assumed a preproject condition with the optimum operation of diversion and spreading works existing as of 1950 under the 1955 pattern of land use (United Exh. 19-A); Calleguas developed an estimate based upon earlier studies made by United to test the accomplishments of Santa Felicia Reservoir (Calleguas Exh. 39). It appears that for the aforementioned period the average historical seasonal waste to the ocean is about 122,100 acre-feet with a maximum of about 810,000 acre-feet in 1940-41 and a minimum of zero or near zero in six years of the period. The true historical and unregulated outflows to the ocean cannot be ascertained from the evidence submitted.

Historical Diversions Made by United and Its Predecessor

As hereinbefore described the diversion and spreading works at Piru and Saticoy operated by Santa Clara Conservation District have been continued by United. According to Tables 68, 70, and 72 of United Exhibit 44, these diversions, together with other minor diversions now discontinued, averaged about 15,900 acre-feet

per season with respective seasonal maximums of 11,800 acre-feet and 25,380 acre-feet diverted and spread at Piru and Saticoy during the 1951-52 season. Under historical conditions the diversion capacities were, respectively, 80 cubic feet per second at Piru Spreading Grounds and 100 cubic feet per second at Saticoy Spreading Grounds.

Unappropriated Water

Both parties essentially rely upon the determination of the quantities of water which would otherwise waste to the ocean in the absence of storage and diversion by the works proposed as the measure of the quantity of unappropriated water. United further stipulated that its Application 12092 includes all of the diversions that have been made historically and not in addition thereto insofar as direct diversion to the Piru, Saticoy, and other spreading works are concerned (R.T. 7/22/57, p. 66). The unappropriated water for the aforementioned period appears, therefore, to average about 138,000 acre-feet per season derived by adding the average historical diversions to the historical outflow. This appears to reflect present land and water use in the Santa Clara River Valley. These waters subject to appropriation are substantially the residuum of the flood flows of the Santa Clara River system that cannot be applied to beneficial use without further storage and diversion works.

Expectation of Runoff

Essential to adequately testing the yields and accomplishments of conservation projects such as those proposed by the

parties is a reasonably firm assurance that the period of study is sufficient to define with conservatism the incidence of wet and dry periods that are likely to occur when the projects are constructed and operating. To fail to do so, would, according to William P. Price, Jr., Chief Engineer and General Manager of United, jeopardize an expanded economy that could not be supported during an extended drought. Throughout the hearing, United made repeated assertions that the Calleguas Project would not provide a firm supply because of over-extensions of the water supply and of failure to give adequate consideration to the likelihood of dry periods of greater severity than those included in the period of study (i. e., 1922-23 through 1954-55).

For the purpose of estimating the probable occurrence and length of wet and dry periods, United extended the period of available stream flow records and estimates by studying the alleged conformity of wet and dry periods with the measured growth of big cone spruce in Southern California since the year 1385 A. D.; and concluded that such studies show the occurrence of extended periods of drought of greater frequency and duration than is borne out by historical records of stream flow (United Exh. 30, 31, 32, 32A, 32B and 67).

Other evidence, however, discloses that authorities on tree growth are not in agreement as to the extent tree rings and the dating thereof may be utilized to identify with credibility relative amounts of precipitation and hence the beginning and ending of wet and dry periods (Calleguas Exh. 97). Furthermore, the record also shows that both United and Calleguas adopted the

same period of study (i. e., 1922-23 through 1954-55); that the average water supply conditions for the period of study substantially agree with the long-term average water supply indicated by precipitation recorded at Santa Paula since 1872; that no adjustments in project yields were made by United to reflect the probable occurrence of dry periods of greater severity than those defined by the period of study; and that the period of study contains two dry periods and one wet period comprising a sequence of dry years followed by a sequence of wet years and thence a sequence of dry years.

Water Quality

The high order of agricultural development in the Santa Clara River Valley with a predominance of salt-sensitive crops such as citrus, walnuts, and avocados demands that reasonable measures be taken to safeguard the quality of the water supply. Harmful concentrations of salts in the water supply or a build-up of salinity in the root zone of the soils through inadequate drainage can be as devastating to the agricultural economy as failure of the water supply itself.

According to Bulletin No. 1, "Water Resources of California", State Water Resources Board, 1951, (SWRB Exh. 3) the present condition of the surface waters of Piru and Sespe Creeks is such that during low flows the waters have boron content generally too high for safe use on all but the more tolerant crops; and that the waters of Piru Creek are high also in sulphates and those in Sespe Creek are relatively high in chlorides, although within the

limits of tolerance for irrigation. Bulletin No. 1 describes the ground waters of the Oxnard Plain and of Montalvo and Santa Paula Subbasins as being of intermediate salinity with boron ranging about 0.5 parts per million and ground waters in Fillmore and Piru Basins as having somewhat higher salinity and boron content.

Ground waters show variable quality, fluctuating somewhat in accordance with the time of year, relative wetness of the season and elevations of ground-water levels; higher concentrations of salts and boron occur in the waters during dry periods than during wet periods (Bulletin No. 12, Ventura County Investigation, State Water Resources Board, 1953, SWRB Exh. 6). In general the majority of the ground waters are within the great intermediate Class 2 waters* characterized by total solids ranging from 950 to 1450 parts per million (ppm) with no predominating excessive ions, calcium exceeding sodium and magnesium and boron concentrations up to 0.7 ppm. According to L. T. Sharp, Soil and Water Chemist, testifying for United, these waters are not in themselves injurious for irrigation but under continuous use and inadequate drainage saline difficulties may arise (United Exh. 64).

Certain areas near Santa Paula along the north frontage of South Mountain are highly chemicalized; wells in these areas yielding waters severe in salinity ranging in concentration from 1700 to 3000 ppm and boron concentrations from 0.9 to 1.3 ppm. It is feared that subsurface effluents from these areas could enter

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* For a description of these standards, see Bulletin No. 1, Water Resources of California, State Water Resources Board, 1951, pp. 53-54 (SWRB Exh. 3).

the basins in substantial quantities and adversely impair the quality of the waters thereof should the basin levels be materially lowered (United Exh. 64).

Mr. Sharp further testified that there is a limited exit from the ground-water basins by way of surface drains and sub-surface outflow to the sea in the vicinity of Oxnard whereby the salts accumulated in the up-river basins may be flushed out and that such an exit and the maintenance thereof is essential and beneficial; that the annual salinity intake in United is estimated to be about 94 million pounds and the escape by way of surface drains about 40 million pounds and that there must be quite an escape to the ocean inasmuch as the build-up in salinity is not increasing as rapidly as in a system with no exit; that the waters of the basins are close to critical salinity and boron levels for use as irrigation water on sensitive crops; that at the present rate of degradation observed in connection with long-time observations of quality of waters from nine wells in and around the City of Santa Paula, the waters will become unfit for the present type of irrigated agriculture within 75 to 100 years; that artificial recharge of the basins with high quality water is essential for the maintenance of safe quality; and that the plan of development proposed by United will substantially improve the quality of the basin waters (R.T. 6/18/57, Sec. 1 and Sec. 2, pp. 1-19).

John R. Morgan, Civil Engineer, testifying for Calleguas contends that there have been no significant changes in the salinity of the ground waters of the Santa Clara Valley over the

past 20 years; that the extent to which the aforementioned nine wells cited by Mr. Sharp may give evidence of increasing salinity does not consider the effect of wastes from industrial, domestic, and municipal sewage sources; that the predominant mineral constituents of the waters are salts of low solubility which are precipitated from the soil solution before their concentrations become high enough to be injurious to crops; and that, according to Dr. L. B. Doreen of the University of California, in a paper read before the American Association for the Advancement of Science on December 27, 1954, in Berkeley:

"The annual rainfall is a very important consideration in judging the suitability of irrigation water. In areas of high rainfall where the soil is wet to 6 feet or more in depth, or below the depth of rooting of the crop grown, the salinity of an irrigation water could be relatively high due to its natural removal. It apparently is not necessary to have sufficient rain to wet below the rooting depth of the plant each year, but a rainfall that will wet to this depth every 3 or 4 years may be sufficient to prevent excess accumulation of salts in a soil. This has been borne out in our Ventura investigations. During a period of 3 or 4 years in succession of extremely low rainfall for the area in which water did not penetrate below the rooting depth, there was considerable salt injury to lemon leaves, particularly when the effective salinity of the irrigation water was above 7 me. But, with 1 or 2 years of normal or above normal rainfall, the salines were effectively removed from the root zone and the salt injury to the trees disappeared."

Mr. Morgan further contends that, in view of the aforementioned conditions, no water should be expressly used for the purpose of maintaining a salt balance (R.T. 6/21/57, Sec. 2, pp. 83-105).

Robert Huntley, City Administrator, City of Santa Paula, and Leon Harthorn, City Manager of the City of Fillmore, both testified that their cities' water supplies are at the margin of

potability; Santa Paula being under notice from the State Water Pollution Control Board to control the mineral concentration of sewage effluent now being returned to Santa Paula Basin.

Fillmore being advised by the State Board of Health that should the sulphate concentration of Fillmore's water supply increase appreciably, it would be necessary to haul potable water in tank cars. The State Water Pollution Control Board has established 2000 ppm as the maximum concentration of total solids in the city's sewage effluent that may be returned to Fillmore Basin. Messrs. Huntley and Harthorn both stated that their cities could be in trouble with disposal of sewage unless new water with diluting possibilities is introduced into the basins (R.T. 6/19/57, Sec. 1, pp. 39-66).

Sea-Water Intrusion

On the Oxnard Plain the pattern of pumping from the Oxnard Aquifer has created severe imbalance in the pressure levels of the water surface in the aquifer which together with the condition of limited transmissibility from the Oxnard Forebay (the principal source of recharge) has caused a landward slope of gradients towards pumping depressions below sea level, particularly in the vicinity of the town of Oxnard. These adverse conditions, which constitute an overdraft created by pumping, and the known exposure of the aquifer to the sea in Hueneme Submarine Canyon has induced the intrusion of sea water into wells in and around the town of Port Hueneme in such amounts as to render the waters pumped therefrom unfit for use (United Exh. 29; R.T. 4/16/57, pp 98-101, and R.T. 4/17/57, p. 174).

The record further shows that there is evidence of sea-water intrusion at work in the deeper Fox Canyon Aquifer underlying the Coastal Plain; and although not as evident as in the case of the Oxnard Aquifer, nevertheless this appears to be a mounting threat to the maintenance of a salt-free supply from Fox Canyon Aquifer, particularly along the Coastal Front. In accounting for the marked recovery of pressure levels in the Fox Canyon Aquifer following the wet season of 1951-52, geologists Dr. John F. Mann, Jr., and Dr. Thomas L. Bailey, testifying, respectively, for United and Calleguas, were in sharp disagreement as to the function played by the intrusion of sea water into the aquifer. Interpretation of the geologic facts in the record tend to show that the Fox Canyon Aquifer extends out under the ocean floor with the top of the aquifer about 1,300 feet below sea level and that there is a salt-water interface about 890 feet below sea level; that the extension of the aquifer into Mugu Submarine Canyon with exposure to the sea and the effects of excessive pumping account for the presence of salt water in the bottom of the well at Point Mugu Naval Base (Calleguas Exh. 86). Further evidence of the active influence of sea-water intrusion are the contours of the water levels in the Fox Canyon Aquifer as shown and delineated on Plate 16-B of Bulletin 12 (SWRB Exh. 6) whereon is shown a marked depression below sea level in the vicinity of Woods and Hueneme Roads with a water surface gradient and the indicated rate of water transmission about 16 times greater from the sea to the depression than from the west portion of Pleasant Valley and about 13 times greater than from the Oxnard Forebay.

It is evident that the aquifers of the Coastal Plain are subject to heavy overdrafts because of unbalanced pumping therefrom, limited transmissibility and recharge; that such overdrafts are being manifested in the contamination of the supply by sea water as well as increased pumping lifts; and that without the introduction of supplemental water to meet increased demands and management of the pumped extractions irreparable damage to the producing strata of the Coastal aquifers could ensue.

The United Plan of Development

The Project Area

United includes the valley and bench lands of the Santa Clara River Valley extending from upper Piru Subbasin to the sea, the entire Oxnard Plain and approximately the western one-third of Pleasant Valley (United Exh. 33). Of Ventura County, United comprises and contains about 75 per cent of the irrigated agriculture, 60 per cent of the population - about 85,700, its principal cities - Oxnard, Santa Paula, Fillmore, and a portion of Ventura, three military installations, and the principal industries. The present assessed valuation of the lands and property within United is estimated to be 116 million dollars.

The Coastal Plain portion of United is the area of immediate and growing need for supplemental water supplies, present sources and facilities having been fully exploited and extensive overdrafts with the evidences of sea-water intrusion as hereinbefore described and declining water levels without prospect of eventual recovery being the present condition.

The lands of United within Pleasant Valley have at present only the limited capability and yield of the Fox Canyon Aquifer as their principal source of supply; and, inasmuch as the natural means of replenishment of the supply to the aquifer is limited and inadequate, the plan of United calls for overland delivery of supplemental water by means of surface conduits. Similarly, limitation on the transmissibility of the Oxnard Aquifer from its principal source of recharge, the Oxnard Forebay

requires that supplemental supplies be distributed throughout most of the Oxnard Plain by surface conduits.

Within the Piru, Fillmore, and Santa Paula subbasins fluctuations in water levels attendant on the occurrence of wet and dry periods which determine the water input thereto, and pumped extractions therefrom by overlying users and appropriators cause the incidental failure of wells tapping the shallower alluviums at the edges of the subbasins and as hereinbefore described tend to cause variations in the quality of the ground water supply. Bulletin No. 3, "The California Water Plan", Department of Water Resources, May, 1957, (SWRB Exh. 14) finds that in the aforementioned subbasins there is at present no overdraft and none is anticipated under ultimate conditions of development.

Water Requirements

According to United the present and ultimate annual water requirements within United are as follows (United Exh. 60):

<u>Annual Water Requirements - Acre-Feet</u>		
<u>Area</u>	<u>Present</u>	<u>Ultimate</u>
Santa Clara Valley	40,800	53,700
Coastal Plain	<u>118,400</u>	<u>157,100</u>
Totals	159,200	210,800

The growth and conversion of land use observed since 1912 and independent studies indicate that under ultimate conditions urban use is expected to include a major portion of the Coastal Plain and the Santa Clara Valley and that irrigated land will be reduced considerably in extent (R.T. Vol. I, pp. 89-91, United Exh. 20, 21, 22 and 23).

Project Works

An initial development, called "Plan A", is to comprise the following features:

1. Santa Felicia Reservoir on Piru Creek with a total storage capacity of 100,000 acre-feet formed by an earth and gravel fill dam 200 feet high and 1260 feet long. The dam and reservoir now in operation were completed in 1955 under a bond issue of \$10,900,000.
2. Topatopa Reservoir on Sespe Creek with a total storage capacity of 100,000 acre-feet to be formed by a concrete arch dam 325 feet high and 900 feet long.
3. Improvements and extensions to the existing Lower River Works consisting of:
 - a. The Saticoy Headworks and desilting basin on the Santa Clara River near Saticoy with a design diversion capacity of 375 cfs. (Actual operation experience has indicated that 400 cfs can be diverted at the headworks (R. T. Vol. II, p. 404)).
 - b. The Saticoy Spreading Grounds in the Oxnard Forebay which are capable of accepting 250 cfs of the river diversion.
 - c. A 78-inch diameter pipeline extending about two miles from the Saticoy Spreading Grounds to a bifurcation, one branch extending to the El Rio Spreading Grounds at the southern edge of the Forebay about 125 acres in area, and the other branch a 54-inch diameter pipeline extending five miles to a terminal reservoir of 75 acre-foot capacity in Pleasant Valley near Las Posas Road and U. S. Highway 101.
 - d. A 42 cfs capacity pipeline supplied from a field of eight wells in the El Rio Spreading Grounds and extending to the towns of Oxnard and Port Hueneme.
 - e. A contemplated enlargement of the El Rio well field to a total of 15 wells.
 - f. A 75 cfs extension of the main Saticoy pipeline to be terminated in a reservoir of 75 acre-feet capacity to be located near Gonzales and Rose Roads.

United proposes that local county water districts assume the engineering and financial responsibility for construction of secondary distribution facilities and such a district has been formed for the United part of Pleasant Valley.

As water need arises and financial capacity allows, United proposes to complete construction of the remaining facilities named in Application 12092 and to apply the water yields therefrom to beneficial use throughout the District in accordance with the following schedule (United Exh. 37):

- 1964, Hammel Reservoir on Sespe Creek of 25,000 acre-feet capacity to yield 5,000 acre-feet per annum.
- 1967, Operation of Basin storage in Santa Clara Valley to yield 25,000 acre-feet.
- 1970, Cold Spring Reservoir on Sespe Creek of 40,000 acre-feet capacity or, alternatively, offstream storage of Sespe waters by storage on Piru Creek, either development to yield about 3,000 acre-feet.
- 1975, Bluepoint Reservoir on Piru Creek in cooperation with the proposal for the State Feather River Project, to yield 27,500 acre-feet.

Plans and operating schedules for these facilities are not described in the record with the same degree of definition as for the features of Plan A. The record also shows that United considers there are certain legal impediments under existing law to manipulate the levels in basin storage for the creation of greater storage space and for the conservation of unappropriated waters, and it does not propose to proceed until such impediments can be removed, most likely by necessary changes in the law and agreement with the overlying users. United, however, does propose to regulate underground storage in the Oxnard Forebay in conjunction with spreading operations and diversions to the

Coastal Plain but not to the full extent contemplated for the up-river basins. In this connection, G. I. Wilde, Assistant Chief Engineer of United, testified that, "... at this time ... we cannot expect to have the right to draw levels down in the Montalvo Basin (Oxnard Forebay) ... to a point where they would be lower than they historically were" (R.T. 6/17/57, Sec. 1, p. 31, lines 2-5); that for the foregoing reason, included in the United operation plan are cutoff criteria requiring that when storage depletion in the Forebay reaches 45,000 acre-feet agricultural deliveries to the Coastal Plain are to cease, when the depletion reaches 63,000 acre-feet municipal deliveries to the Coastal Plain are to cease; and, that to provide sufficient head for a continuous seaward gradient of the water table in the Oxnard Aquifer and thus retard sea-water intrusion it is desirable to maintain ground water levels in the Forebay at 25 feet above sea level which elevation corresponds to a depletion of 80,000 acre-feet in the Forebay.

The Saticoy and El Rio Spreading Grounds are to function to build up water tables in the Oxnard Forebay and the Oxnard Aquifer, thereby relieving the overdraft and tending to retard the intrusion of sea water, and to make the river waters acceptable as potable water for municipal purposes by virtue of the natural filtration achieved through spreading and subsequent extraction by pumping. The proposed desiltation basin at the Saticoy headworks is to function to remove the suspended sediments in the river waters that would otherwise render them unfit for diversion and destroy the effectiveness of the spreading beds.

United proposes to release stored waters together with water allocated to satisfy prior rights at a uniform annual rate over a six-months' period and manipulate the rate of reservoir releases within each period so as to produce the greatest yield to the Coastal Plain. By reason of the high percolation capacity of the main river channel between the points of storage and re-diversion at Saticoy, however, losses in transmission to the Saticoy Headworks could be a substantial part of the yield at the reservoir (SWRB Exh. 6). Julian Hinds, Consulting Engineer, testifying for United, estimated that, in his opinion, by stream channel rectification and manipulation of the rate of the reservoir releases, 75 per cent of the releases would reach the Saticoy Headworks (R.T. Vol. II, pp. 389-90). To achieve the effective transmission of stored waters, United proposes to consummate agreements with the basin water users so as to enable the combined storage of surplus flood waters and waters claimed by prior rights, thereby achieving the transmission of "project waters" to Saticoy as it were on the back of the "prior rights water", and sustaining the percolation losses through use of the latter. The extent to which this regulation of "prior rights water" could be made without exceeding the lawful measure of existing rights is not established. It is certain, however, that neither a riparian nor an overlying user may store water for future use. It appears, therefore, that the regulation of "prior rights water" for the above-described purpose may have to be considered a burden on the appropriation under Application 12092. Also, it is apparent that the effectiveness of the reservoirs in conserving surplus

water is reduced in proportion to the amount of "prior rights water" impounded and regulated.

Scarification. Included in Application 12092 is the proposal to increase the percolation capacity of the channel of the Santa Clara River and thus increase the input to underground storage by scarifying the river beds. Of this method of appropriation, G. I. Wilde testified:

"... there are probably great possibilities for conserving additional amounts of water by scarifying the streambed. However, this practice has some other problems along with it, one of which would be that United Water Conservation District does not own the lands of the riverbed of the Santa Clara River, and so this factor would require that United gain the right to enter those lands for a scarification program."

Mr. Wilde further testified in substance that United has not stated the rates and amounts at which the water may be induced to percolate into the river bed but that he believes scarification to have possibilities that United expects to explore (R.T., Vol. II, pp. 451-452).

Piru Spreading Grounds. Operated since 1931, the Piru Spreading Grounds have functioned to supplement the natural input of water to underground storage in Piru subbasin and such historical diversions, being substantially flows that otherwise would have wasted to the sea, appear to be a part of the unappropriated waters for which Application 12092 was filed. According to Table 68, United Exhibit 44, annual diversions for the period water years 1931 through 1953 averaged about 5,000 acre-feet with recorded annual extremes of 11,800 acre-feet during the 1951-52 season and zero acre-feet during the 1941-42, 1943-44, and 1950-51 seasons. The record does not describe any plans by

United to enlarge or modify the capacity and function of the Piru Spreading Grounds. The works have a maximum capacity of about 160 acre-feet per day.

Yields and Accomplishments

According to Table V-20, United Exh. 19A, the yield of project waters under Plan A for the Coastal Plain Area would average 43,900 acre-feet annually for the 33-year period of study. This yield is measured by the difference in surface waste to the sea past Montalvo Bridge under 1950 conditions of development and under Plan A corrected for reservoir evaporation losses. Allowances for seasonal losses in active reservoir capacity due to siltation were made to the extent of 480 acre-feet and 400 acre-feet for Santa Felicia and Topatopa Reservoirs, respectively. Provision for prior rights includes annual releases from Santa Felicia and Topatopa Reservoirs averaging 11,200 acre-feet and 12,000 acre-feet, respectively (United Exh. 19A, Table V-14, V-15). The annual yield created by each major feature of Plan A and the existing works (under historical conditions) appears to be about as follows:

Santa Felicia Reservoir	13,700 acre-feet
Topatopa Reservoir	15,450 acre-feet
Direct Diversion at Lower River Works	14,750 acre-feet
Historical Diversions to Saticoy	
Spreading Grounds (approximately)	*10,000 acre-feet
Historical Diversion to Piru	
Spreading Grounds (approximately)	** 5,000 acre-feet
Total Yield of all Facilities	58,900 acre-feet

* Table 70, United Exh. 44

** Table 68, United Exh. 44

Of the 58,900 acre-feet, it appears that 53,900 acre-feet would

be available to the Coastal Plain of which 43,900 acre-feet would be applicable to meeting the existing overdraft thereon. Concerning the 43,900 acre-feet average yield created by operation under Plan A, an average of 33,700 acre-feet thereof would be available for surface delivery via the terminal reservoirs with the balance charged into underground storage in the Forebay and the Oxnard Aquifer for subsequent extraction to meet current municipal requirements and to supplement supplies during dry years. For a water availability period similar to the 33-year period of study, in 30 of 33 years the surface deliveries varied from 25,600 acre-feet to 46,000 acre-feet and during the other three years surface deliveries were 19,000 acre-feet, 15,000 acre-feet, and zero acre-feet, respectively, with reliance on ground waters in the Coastal aquifers to supplement deficient surface supplies (R.T. 6/13/57, Sec. 2, p. 21).

Ground water reserves and sources of recharge in Fox Canyon Aquifer being limited, it appears that during extreme dry years supplies cannot be as firm and dependable as for lands served from the Oxnard Aquifer on the Oxnard Plain; and depending upon the condition of the Fox Canyon Aquifer, some mining of its seaward extensions may be necessary. Thus, for Pleasant Valley, it appears that some shortages in supply would have to be sustained, but indications are that such shortages as may likely occur are not so extreme in frequency and amount as to violate the requirements of current irrigation practice. Most major irrigation projects of recent date are designed to sustain some shortages in water supply.

Although Plan A is chiefly for the benefit of the Coastal Plain, evidence was presented that by reason of introduction of new waters of lower saline concentration derived from storage, ground water levels would be improved and water quality would be upgraded in the Santa Clara Valley (United Exh. 19A, Tables 33, 34, and 35). Because of the alleged improvement in water quality that would ensue, United moved that Application 12092 be amended on its face to include "incidental salinity control" as one of the purposes for which the water sought for appropriation is to be used (R.T. 6/18/57, Sec. 2, pp. 19-21).

Concerning the yield available from Santa Felicia Reservoir operated in conjunction with the proposed Lower River Works, Mr. Price testified that this combination would yield about 32,500 acre-feet of water per annum (R.T. Vol. I, p. 184), and that this yield would meet the present water requirements on the Coastal Plain (R.T. 6/12/57, Sec. 2, pp. 16-17). Similar estimates are presented at page 92 of United Exhibit 42, "Investigation, Plans and Estimates for a Supplemental Water Supply in the Santa Clara Valley and Vicinity", by Julian Hinds.

Concerning the relief from sea-water intrusion into the Oxnard Aquifer, United submits that the furnishing of supplemental water to the Coastal Plain even under Plan A will not reverse the landward gradient of the ground water slope; hence leakage of water to the sea is impossible and at best sea-water intrusion can only be retarded (United Exh. 19A, p. 17). If full restoration of seaward gradients is the criteria for overdraft, it appears that the magnitude of present water requirements would

be far greater than can be furnished under Plan A. But United further submits that overland delivery of municipal water via the Oxnard-Port Hueneme line will remove a hitherto heavy draft on the aquifers and thereby aid in retarding sea-water intrusion (United Exh. 19A, p. 17).

Costs

Estimated capital costs of certain features of the United Plan are as follows:

Santa Felicia Dam and Reservoir and improvements to Lower River Works about	\$10,000,000(1)
Topatopa Dam and Reservoir	\$11,300,000(2)
Hammel Dam and Reservoir	\$12,900,000(3)

(1) R.T. Vol. II, p. 362

(2) United Exh. 36, R.T. Vol. I, p. 187

(3) Table 78, Bulletin No. 12 (SWRB Exh. 6)

According to G. I. Wilde, the cost of water delivered at the terminal reservoirs would be approximately 24 dollars per acre-foot and the addition of Topatopa Dam would increase this cost to about 32 dollars per acre-foot, both costs without interest (R.T. Vol. II, pp. 430-431). The record does not contain a statement by United of the capital and annual costs with provision for interest, operation and maintenance for all features proposed by United under Application 12092 and there appears to be no basis for comparison with the cost data supplied by Calleguas. The cost of secondary distribution facilities to the users are not considered in the project capital costs but are estimated to be about five dollars per acre-foot (United Exh. 59).

Power Development

By Order of the Federal Power Commission issuing license for Project No. 2153, construction of the power facilities proposed to be attendant to Santa Felicia Dam and Reservoir were approved December 20, 1954. Regarding United's intent to proceed with the power project, Mr. Price in substance testified that construction of Santa Felicia Power Plant under Application 15145 is dependent upon the availability of a firm water supply from either sources outside the Santa Clara River Watershed or diversion and offstream storage of Sespe Creek waters; that development of the latter source would make limited power facilities at Santa Felicia feasible (R.T. Vol. 5, pp. 219-221).

The Calleguas Plan of Development

The Project Area

Calleguas Municipal Water District, occupying 175,000 acres within southern Ventura County, is bounded on the north and west by United, on the east by the Ventura County line, and on the south by the Simi Hills and Santa Monica Mountains. Included within Calleguas is about 24,000 acres of Pleasant Valley Basin (Calleguas Exh. 3).

Calleguas and the United States Bureau of Reclamation entered into contracts for a cooperative investigation of the needs for water and the development potentials of Calleguas. The findings of the preliminary investigation (Calleguas Exh. 6) showed that extreme and urgent need for supplemental water exists; that three general sources appeared to have merit for further investigation, namely, more extensive conservation and use of water resources within Ventura County, importation from Metropolitan Water District of Southern California and importation from Upper Kern River. On the basis of the preliminary findings, Calleguas directed the Bureau to concentrate its studies and investigations of feasibility on the surplus waters of Sespe Creek as the most practicable source for the early development of supplemental water (R.T. Vol. III, pp. 477-486). Mr. John R. Morgan, Bureau Engineer, presented testimony on behalf of Calleguas pertaining to factual information developed and engineering judgement thereon as of the findings to date (R.T. Vol. III, pp. 467-468); and stated that the field draft of the feasibility investigation is nearing completion for submission to and adoption by the Bureau (R.T. Vol. III, pp. 486-487).

A land classification made in 1955 and adapted to Bureau standards reveals that there are approximately 84,300 acres of arable lands within Calleguas, of which about 27,970 acres are irrigated and about 34,970 acres are being dry-farmed or lying fallow; that citrus is the leading irrigated crop, with walnuts a close second (R.T. Vol. III, pp. 490-496).

Principal communities are the unincorporated towns of Camarillo, Somis, Moorpark, Simi, Santa Susana, and Thousand Oaks and smaller outlying settlements, all occupying a total of about 3,025 acres. According to Richard Bard, President of Calleguas, the assessed valuation of the lands and property in Calleguas is about forty-three million dollars (R.T. Vol. V, p. 1020).

Water Requirements

Mr. Morgan testified that there are no significant surface flows within Calleguas capable of further conservation (R.T. Vol. III, p. 475); that under present development Calleguas is dependent almost entirely upon ground water supplies which are seriously overdrawn with the levels thereof declining rapidly (R.T. Vol. III, p. 523); that the annual safe yield of ground water supplies is 27,250 acre-feet (R.T. Vol. III, p. 552, Calleguas Exh. 21); that the present annual water requirements for irrigation, municipal, and industrial purposes is 44,480 acre-feet and is not representative of present needs because development has been curtailed by inadequate water supplies (R.T. Vol. III, p. 553, Calleguas Exh. 22); that the annual future requirement for water is estimated to be 93,700 acre-feet projected from the year 1965

to 2015 A.D. (R.T. Vol. III, p. 552, Calleguas Exh. 22); that Calleguas will experience its most critical period in regard to urgency of need for additional water supplies in relation to those available, between the present and the time water is imported from the north (R.T. Vol. IV, p. 723); that because of proximity to the major industrial area of the San Fernando Valley and to Los Angeles the southern and eastern portions of Calleguas are subject to early urbanization and the influence of rapid and steady growth (R.T. Vol. III, p. 511, p. 518); that present and future annual supplemental water requirements are 17,230 acre-feet and 67,100 acre-feet, respectively. (Calleguas Exh. 22).

Project Works

The prospective Calleguas plan includes the following features:

1. Topatopa Dam on Sespe Creek, a zoned earth and rock-fill structure 435 feet high, 1200 feet long, impounding 160,000 acre-feet. Releases to Sespe Creek would be made through a concrete-lined tunnel designed to discharge a maximum of 4,900 second-feet (R.T. Vol. III, pp. 669-670, Calleguas Exh. 54).

2. Tar Creek Diversion Dam to be located on Sespe Creek about 2000 feet downstream from the mouth of Tar Creek. It would be a concrete gravity structure with an uncontrolled ogee overflow crest 135 feet long at elevation 1,065 feet, designed to pass a flood flow of 32,500 second-feet. The dam would be about 20 feet high above stream bed. A trash rack would protect the inlet to the intake tunnel of the Sespe conduit. Sluicing

facilities would be included in the first 200 feet of the tunnel and the sluiced material would be returned to Sespe Creek below the diversion dam (R.T. Vol. III, p. 671, Calleguas Exh. 55).

3. The Sespe Creek conduit with a design capacity of 150 second-feet to convey water diverted at Tar Creek to off-stream storage in Tierra Rejada Reservoir. The conduit would consist of 8,700 feet of 6½ feet diameter tunnel beginning at the diversion dam, 47,000 feet of 54-inch diameter reinforced concrete pipe crossing the Santa Clara River near Fillmore, 8,400 feet of 6½ feet diameter tunnel through Oak Ridge, and approximately 29,000 feet of 54-inch diameter reinforced concrete pipe terminating at Tierra Rejada Reservoir (R.T. Vol. III, p. 673, Calleguas Exh. 56, 57).

4. Tierra Rejada Reservoir with a capacity of 200,000 acre-feet formed by a series of zoned earthfill dams and dikes across Arroyo Santa Rosa and around a portion of the rim of Tierra Rejada Valley near Moorpark. The maximum embankment section height would be 250 feet, with the crest of the dam at elevation 770 feet. A tunnel through the right abutment of the main dam on Arroyo Santa Rosa would provide outlet capacity of 110 second-feet and connect with the main conveyance system (R.T. Vol. III, pp. 673-674, Calleguas Exh. 58).

5. The main conveyance system with appurtenant facilities, pumping plants, and balancing reservoirs immediately below Tierra Rejada Dam and as presently contemplated would extend to each subarea and the communities within Calleguas District with provision for extension into the Coastal Plain Area of United at

the option of the latter (R.T. Vol. III, pp. 675-676, Calleguas Exh. 3).

Project Costs

The estimated capital costs* of the aforementioned features are as follows:

Topatopa Dam	\$23,645,000
Tar Creek Diverion Dam	770,000
Sespe Conduit	10,569,000
Tierra Rejada Dam	18,490,000
Main Conveyance System	10,766,000
General Property	<u>260,000</u>
TOTAL	\$64,500,000

Estimated annual operation and maintenance costs for the above features approximate \$170,000 and in addition, facilities for distribution of the water developed by the Prospective Project would approximate \$4,065,000 (R.T. Vol. III, p. 676).

Project Yields

In determining the amounts of Sespe Creek water that could be stored and diverted by Calleguas, first priority to the surplus flows of the Santa Clara River System was accorded to United for the operation of Santa Felicia Reservoir and the Lower River Works (R.T. Vol. III, p. 646); that storage and diversion was made only to the extent of capturing the remaining waste flows to the sea through Fillmore and Santa Paula Subbasins after provision was made for prior rights of the Fillmore Irrigation

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* January, 1957, price base.

Company and percolation into the subbasins by means of live stream releases (R.T. Vol. III, pp. 661-663); that the mean annual flows considered surplus for development by Calleguas are 28,628 acre-feet at Topatopa Dam site for the period water years 1921-22 through 1955-56, and 41,249 at Tar Creek Diversion Dam for the period water years 1922-23 through 1955-56. (Calleguas Exh. 48, 49). An operation study for the period 1922-1956, (Calleguas Exh. 51) embodying the foregoing criteria was made in which the Sespe Creek flows contributing to the waste to the sea and originating above Topatopa Dam were stored for later diversion; similar flows originating between Topatopa Dam and Tar Creek were considered to be diverted to Tierra Rejada Reservoir to the limit of the conduit capacity and diversions from Topatopa Reservoir were limited whenever storage in Tierra Rejada exceeded 170,000 acre-feet so as to more effectively conserve the divertable flows arising below Topatopa Dam. A 10,000 acre-feet reservation in Topatopa Reservoir for siltation and annual evaporation losses averaging 1,340 acre-feet at Topatopa Reservoir and 6,060 acre-feet at Tierra Rejada Reservoir were incorporated into the study. The study further shows that there would be available for delivery from Tierra Rejada Reservoir a safe annual yield of about 31,000 acre-feet (R.T. Vol. III, p. 664), and that the level of water tables in the Piru, Fillmore, and Santa Paula subbasins would not be significantly lowered (Calleguas Exh. 59).

Economic and Financial Feasibility

The cooperative investigation showed that primary benefits arising from the provision of supplemental water for

irrigation, municipal, and industrial uses would exceed total costs in the ratio of about 1.3 to 1.0; that preliminary indications are that the delivered per acre-foot costs to the users would approximate \$45 for irrigation water and \$110 for municipal and industrial water; and that these rates are within the measured payment capacity of the users to pay indicating the project to be financially feasible.

Initiation and Completion of Construction

Resolution No. 8 of the Board of Directors of Calleguas Municipal Water District approves the findings and conclusions of the cooperative investigation by the Bureau and requests the Bureau to process the project report with a view toward obtaining the earliest possible authorization for the construction of the Calleguas Project. (Calleguas Exh. 96). Archie K. Hill, Engineer-Manager for Calleguas, testified that if the applications of Calleguas were approved, Calleguas would seek authorization for a federally constructed project similar to the Ventura River Project and the Cachuma Project; that upon federal authorization, Calleguas would commence negotiations with the U. S. Department of the Interior for a repayment contract with a view towards completing the project within a 5-year period after consummation of the contract. Calleguas further states that it is essential to initiate the project as soon as possible to take advantage of the anticipated sequence of wet years to prime the project and provide the firm water supply.

Proposal of Calleguas for Joint Development with United

As heretofore described, an extension of the Calleguas Conveyance System would make possible the delivery of a portion of the yield from Tierra Rejada Reservoir to the Coastal Plain Area of United. In this regard, Calleguas submits that such a joint venture and the firm water supply therefrom would make possible two other benefits to United in addition to use of the water, namely:

"(1) The portion of the Coastal Plain served by water from the Prospective Plan would not need standby pumping facilities; and

"(2) The rate of salt water encroachment might be reduced by eliminating the pumping draft in that area served by the firm water supply. This should aid particularly during the drought years when the rate of intrusion probably is most rapid" (R.T. Vol. III, pp. 683-684).

To this end Calleguas proposed that United enter into a joint program for construction of the Calleguas Project and utilize 11,000 acre-feet or some other equitable proportion of the yield therefrom; and that one manner of joint operation would be for "both districts to have a contract with the United States Government for water service or some equitable repayment of the cost of the water produced there, either on a repayment basis for the main facilities or on the water service repayment" (R.T. Vol. IV, p. 824).

United rejects any joint venture with Calleguas that would result in exportation of Sespe Creek flows to Calleguas, United considering its own Plan A to have greater merit, flexibility, convenience, and lower cost.

Motion by Calleguas to Amend Applications 13417, 13417A, and 13418

In conformity with the evidence presented, Calleguas moved to amend Applications 13417, 13417A, and 13418 to change the point of diversion to storage on Sespe Creek from Coltrell Dam, hereinbefore described, to Topatopa Dam. There is no evidence that other rights would be prejudiced by the proposed change (R.T. 7/24/57, pp. 265-266).

Appropriation at Cold Spring

No evidence was presented in support of those portions of the applications of Calleguas to appropriate water at Cold Spring.

Testimony by Protestants

Individual protestants who are landowners and residents of the United District presented testimony in opposition to the applications by Calleguas, arguing in substance that exportation of Sespe Creek waters would lower the water tables, impair the quality of water supplies, deprive them of needed supplies available under the United Plan, deny full expansion of use under existing rights, and deprive them of opportunity to make reasonable and beneficial use of Santa Clara River waters for the maintenance and improvement of water table levels and quality.

It was testified that a material lowering of water levels in Fillmore Subbasin would increase the intrusion of boron into wells from side-tributary drainage; that great fluctuations in water levels in Piru Subbasin have been experienced and if water levels in downstream basins are further lowered, the subsurface outflow from Piru Subbasin will be increased, resulting in lowering of the water table and impairment of water quality; that waters of the Santa Clara River system should be controlled so as to improve the levels and quality of ground water naturally supplied therefrom and that such control would be a beneficial use of water.

Robert Naumann, a Director of United, appearing on behalf of himself, Mrs. Catherine Naumann, Naumann and Tassano, testified that they are joint owners of seven wells pumping from the Oxnard Aquifer on the Oxnard Plain for domestic water and the irrigation of about 180 acres of land; that over the last 45 years

he has observed well levels drop from flowing levels to over 70 feet below ground surface; that he has developed highly saline soils by drainage and heavy use of water to support a wide variety of salt-sensitive crops, that the exportation of water by Calleguas will decrease the amounts of water available for spreading at Saticoy and thereby cause a further lowering of the levels in the wells; that the Calleguas Plan for a joint venture would work to detach the Oxnard Plain from its natural source of supply and compel users to rely upon more costly facilities that would deliver less water; that the users on the Oxnard Plain wish to continue cooperation with the up-river portion of United for the purpose of conserving and protecting the waters of the Santa Clara River System; that also as a landowner and taxpayer in Calleguas he protests the Prospective Plan of Calleguas and the Calleguas' applications on the grounds that it provides an inadequate supply which will be delayed in being available, and Calleguas should seek water from The Metropolitan Water District; that in view of the present and future water needs of both Districts, the cost of projects and the water quality problems he does not believe it to be in the public interest to approve the applications of Calleguas. (R.T. 6/19/57, Sec. 2, pp. 55-59).

Paul E. Owen, Assistant Utility Superintendent, appearing for the City of Oxnard, testified that Oxnard has a population of 30,000 and an assessed valuation of \$33,734,310; that Oxnard obtains its water supply from eight wells pumping from the Oxnard Aquifer, from which 5600 acre-feet was pumped during 1956; that being ideally situated and suited for industrial

expansion and growing at a present rate of 1800 people per year, by the year 1970 the anticipated population will be about 60,000 and that a major limiting factor on the City's growth will be the availability of water; that if supplemental water is not supplied to meet the present overdraft the resultant intrusion of salt water into the supply will injure the economy of the City and its environs; that the water table under the City has been dropping steadily for the last 12 years; that the quantity of water offered to the City by United at \$9.80 per acre-foot is sufficiently low to encourage its use and the curtailment of pumping the underground supply and is much less than the cost of water to the City from the Calleguas Project; that the proposed appropriations of Calleguas and exportation of water outside the boundaries of United will decrease the City's water supply in quantity and quality, and will restrict the overlying users to expand use to the full extent of their rights. (Oxnard, Exh. 3A). (R.T. 6/19/57, Sec. 1, pp. 68-90).

Walter B. Moranda, Chief Administrative Officer and Superintendent of the Municipal Water Department for the City of Port Hueneme, testified that two of the City's wells pumping the Oxnard Aquifer have been abandoned as a result of sea-water intrusion; that the City is using supplemental water under contract (Calleguas Exh. 89) with United through the Oxnard-Port Hueneme line at the rate of about 5 acre-feet per day at a cost of \$9.80 per acre-foot; that maintenance of the City and industrial and urban expansion now under way make imported water essential because the present fresh water supply is rapidly failing. (R.T. 6/19/57, Sec. 2, pp. 1-14).

Testimony of California Department of
Water Resources

Robert M. Edmonston, Principal Hydraulic Engineer, appearing on behalf of the State Department of Water Resources, testified as to the investigations and findings set forth in Bulletin No. 12, "Ventura County Investigation", State Water Resources Board, 1953 (SWRB Exh. 6), and Bulletin No. 3, "The California Water Plan", Department of Water Resources, 1957 (SWRB Exh. 14). (R.T. Vol. I, pp. 133-168).

Bulletin No. 12 developed data on the water resources of Ventura County and present and future water requirements, and also developed plans for conservation of waters wasting to the ocean. Principal conclusions relating to the Santa Clara River system were a plan for an interbasin transfer of water predicated on mutual agreement between Calleguas and the users in the Santa Clara Valley and the existence of a county wide water agency; that the period 1936 to 1951 typifies the occurrence of the water supply of the Santa Clara River system and adequately tests the accomplishments of the reservoirs under consideration; that in the Piru, Fillmore, and Santa Paula subbasins there is no present overdraft nor is it anticipated there will be one under ultimate conditions of development; and that it is physically possible to increase the drawdown in the subbasins for the exportation of water. Mr. Edmonston further stated that the plan for interbasin transfer of water was negated by construction of Santa Felicia.

Bulletin No. 3 provides a means of determining how much local water could be developed so that it could be determined

how much water would have to be imported from the north to supplement local sources of supply. In Mr. Edmonston's opinion there is no problem of conflict between the proposed California Water Plan and the plans of either United or Calleguas for development of the water resources of the Santa Clara River System.

The Department has no views as to which of the applications under consideration should be approved.

Discussion

Effect of the Proposed Projects Upon Vested Rights:

Concerning the effects of the proposed projects and the operation thereof upon vested rights, the Board concludes that no unreasonable interference with the quantity, quality, and means of diversion of Santa Clara River System waters would ensue by the issuance of permits to either applicant properly conditioned so as to safeguard existing rights; that a deprivation of benefits, the realization of which is contingent upon operation of the United Project as herein described, does not constitute a bar to the approval of the applications of Calleguas; that in the Piru, Fillmore and Santa Paula Subbasins the anticipated increase in water requirements or the projects herein described will not give rise to the creation of overdrafts nor unreasonably impair pumping levels, cause material depreciation of supplies or unreasonably degrade the quality of the subbasin waters and that over a sequence of wet years, the subbasins will continue to refill provided there be no substantial alteration in the amounts of surface water that under natural conditions would percolate into the subbasins; that the present, prolonged drought has unduly intensified concern over the quality of water supplies and there appears to be no immediate threat in this respect. It is apparent also that the amounts of water to be diverted and stored under the projects proposed by both applicants are substantially waters which otherwise would waste to the sea without benefit to any of the lands or water supply sources of the Santa Clara River Valley.

Furthermore, such storage and diversion works as may be dedicated to conservation of the surplus unappropriated flood flows may not be operated under existing rights in the Santa Clara River Valley, whether they be riparian, overlying, appropriative, or combinations thereof; in accordance with the Water Code and court decisions, rights thereto may only be perfected through permits issued by the Board pursuant to applications to appropriate water.

Protection of Vested Rights

The evidence shows and it is not disputed that the natural flow of the Santa Clara River supplies surface diversions for reasonable beneficial use on adjacent lands under overlying and riparian rights and under appropriations existing prior to filing of the subject applications and that such flow contributes to ground water by percolation from the channel of the river. The undisputed evidence further shows that water is being withdrawn from ground-water strata fed by surface flow of the river for reasonable beneficial use on overlying lands and that the land-owners and water users are entitled to protection from depletion of the natural water supply as the result of operation of projects proposed by the applicants. Maintenance of a limited subsurface outflow through the Mound Basin is a beneficial use to the extent of averting the intrusion of sea water into the waters of the Basin and providing a partial exit for deleterious salts that otherwise would accumulate in the upstream basins.

All permits to be issued should contain a general condition that water shall be released past storage dams and

diversion structures in such amounts and at such times and rates as will be sufficient, together with inflow from downstream tributary sources, to supply downstream diversions of the surface flow under vested prior rights to the extent water would have been available for such diversions from flow unregulated by permittee's works, and also sufficient to maintain percolation of water from the stream channel as such percolation would occur from such unregulated flow, in order that operation of the projects shall not reduce natural recharge of ground water from the Santa Clara River.

The allowances for vested rights made by the parties in their operation studies in the form of live stream releases to maintain natural percolation to underground storage in the Santa Clara River Valley and to satisfy surface diversions do not establish satisfactory operating criteria to assure adequate provision for vested rights but instead merely test the accomplishments of the projects and define the amounts of water conserved thereby over a period of historical record. Notwithstanding, the Santa Clara River System fundamentally derives its supply from rainfall runoff which is not susceptible to accurate prediction in advance as to occurrence, amount, and duration; and as a consequence all waters tributary to project reservoirs would necessarily have to be first impounded and subsequently released or retained in accordance with downstream requirements.

Retention of Jurisdiction

There is general agreement that computations of the amount and timing of the required releases are extremely complex

and that available information is insufficient upon which to base required positive conclusions. Furthermore, the record is deficient with respect to the percolation characteristics of the basins and the required releases to maintain the same, the yield studies having derived the storable, unappropriated flows in the sources by comparisons with the waste to the sea.

In recognition of the need for development and refinement of project operation criteria, Calleguas proposed that a schedule for the storable and unappropriated flows of Sespe Creek and Piru Creek be developed by means of comparison with waste flows to the sea adjusted to maintain a continuous live stream to Montalvo Bridge and corrected for operation of Santa Felicia Reservoir; that the Board should require collection and reporting of the necessary basic data relating to stream flow, basin storage levels and percolation rates; and that the Board should consider retaining jurisdiction over a trial period of operation to assure compliance with the permit terms. (R.T. 6/21/57, Sec. 2, pp. 116-120). Through counsel United also requested that the Board retain continuing jurisdiction and pursuant to authorization by the Board after conclusion of the hearing submitted suggested special permit terms and conditions having the same general purpose and scope as those proposed by Calleguas. Also, the Department of Fish and Game in its proposed terms and conditions for protection of fish requested the Board to retain jurisdiction pending the negotiation of further agreement with the permittees.

There is ample support in the record for permit terms to carry into effect the foregoing recommendations. The Board

is of the opinion that there is lacking in the record sufficient information upon which to base positive and definite conclusions concerning specific conditions to be imposed at this time in permits issued to United and Calleguas necessary for adequate protection of vested rights; that investigations and studies should be carried out and reported annually by the permittees until further order of the Board; that the Board should retain jurisdiction for as long as required not to exceed the entire life of the permits for the purpose of such reviews, hearings, and orders as may be required to assure determination of the necessary timing and releases of water past the storage and diversion works based upon further information developed by such continuing studies and investigations to fully protect vested rights; and that the Board should hold such hearings on these matters as may be necessary before final determination of the requisite permit terms.

Protection to the Watershed of Origin

The assertion of United that it possesses a paramount right to the appropriation of such waters of the Santa Clara River system as may be needed for its present and future needs by reason of United being within and part of the watershed of origin, is not sustained by the record facts. The appropriation proposed by United is primarily for use on the Coastal Plain. It appears legally unsupported to conclude, that because the underlying Oxnard Aquifer is principally derived from the alluvial deposits of the Santa Clara River, this area is within the watershed of the river. The applicable rule is derivable from the opinion in Rancho Santa Margarita v. Vail, 11 Cal. 2d. 501, wherein with reference to the contention that lands which in past geologic ages may have been delta lands, the Court stated that "...riparian rights are not determined by past geologic formations but from the present natural topography." Consequently, except for the natural accretions from the Santa Clara River to the Oxnard Aquifer as heretofore described and the small surface drainage area as shown and delineated on United Exhibit 8, the Coastal Plain lies outside the watershed of the Santa Clara River and in this respect is therefore an area of export to a similar extent as is the Calleguas area in relation to the watershed of the Santa Clara River.

The applications of both districts are subject to the public policy of this State which demands that only water not reasonably required for beneficial use within the watershed of its origin shall be available for export. This general policy is reflected in Section 232 of the Water Code wherein the Legislature

declared that "in providing for the full development and utilization of the water resources of this State it is necessary to obtain for consideration by the Legislature and the people, information as to the water which can be made available for exportation from the watersheds in which it originates without depriving those watersheds of water necessary for beneficial uses therein. . . ." To that end the Department of Water Resources was directed to conduct investigations and to report to the Legislature at the earliest possible date. Compare essential accord therewith in concurrent resolutions of both houses of the Legislature calling upon the Board's predecessor to condition permits and licenses issued to the United States Bureau of Reclamation so as to prevent transfer of water of one watershed or area of origin to another watershed or area until provision is made to meet the reasonable water requirements of the former (Stats. 1953, Vol. I, pp. 272, 405).

Independent investigations and studies by the former State Division of Water Resources on behalf of the State Water Resources Board resulted in a determination by that agency that there is no present overdraft in the Piru, Fillmore, and Santa Paula subbasins and that none is anticipated under ultimate conditions of development. According to estimates presented by United, ultimate annual water requirements in the Santa Clara Valley exceed present annual requirements by approximately 13,000 acre-feet. Assuming that none of the water appropriated by United under the permit issued to it on Application 12092 will be used to supply these additional water requirements and that, contrary to the findings of the State, increased extractions of ground water would

result in an overdraft, there will still remain approximately 30,000 acre-feet per annum of unappropriated water that could be conserved.

In view of the foregoing, the Board concludes that issuance of permits to either of the two districts for the projects proposed for immediate development by them will not conflict with the aforementioned policy concerning protection of watersheds of origin.

Diligence:

Diligence is the essence of a right to appropriate water. Accordingly, applicants must be prepared to commence construction of their projects promptly after issuance of permits. If actual construction must be delayed pending completion of preliminary work or the removal of obstacles incident to the enterprise, there must be a present purpose and intent to proceed steadily and resolutely toward the ultimate goal without unnecessary delay. One who does not propose to proceed immediately with development of a project cannot make a reservation of water for future needs by the expedient of filing an application. Section 776 of the Board's rules (23 Calif. Adm. Code 776) provides:

"776. Time for Completion. In determining the period of time to be allowed within which to complete an application or within which to build diversion works and apply the water to full beneficial use, the particular conditions surrounding each case will govern, except that in every case the matter must be pressed with due diligence commensurate with the size of the project and the obstacles to be overcome."

The United application proposes appropriations of water at various points on Piru Creek, Sespe Creek, and the Santa Clara River. The construction schedule presented by United calls for

staged development. The application includes diversions at Saticoy which were initiated in 1928. Diversion to the Piru Spreading Grounds, another feature of the application, commenced in 1931. Santa Felicia Dam and Reservoir were completed in 1955, after Application 12092 had been filed but without awaiting action thereon. The records of the Board disclose that United proposed that a permit be issued to it for the Santa Felicia project prior to construction, but also requested that action on the remainder of its application, which was then incomplete, be deferred. This request was not granted and subsequently United amended and completed its application so as to comply with technical requirements concerning description of proposed project facilities.

United now proposes to construct in the near future those features of its application which are included in its "Plan A" as heretofore described. At the hearing it submitted a construction schedule for the remaining features of its application as set forth on page 41 of this decision. This schedule was produced after attention had been called to the necessity therefor. It is clear from the evidence that United's plans to appropriate water by means of facilities at Cold Spring and Blue Point are highly indefinite and speculative and that it does not contemplate proceeding promptly and diligently with these developments. Instead, it proposes to wait for an extensive period of years until such time as there is need for the water within the district. The construction schedule is not based upon the time required to complete engineering investigations and studies and other preliminary work but is based upon estimates of when additional water will be

required to meet anticipated economic expansion within the district. The application calls for a storage reservoir of 400,000 acre-feet capacity at Cold Spring, but engineering witnesses expressed doubt that such a reservoir would be economically feasible and spoke in terms of a 40,000 acre-feet reservoir at Cold Spring or of a possible alternative diversion of water from Sespe Creek to storage on Piru Creek. United's plans to construct a reservoir at Blue Point are equally indefinite and are dependent in part at least upon possible integration with the State's Feather River Project.

In view of the foregoing those portions of Application 12092 which request appropriation of water by means of storage at Cold Spring and Blue Point should be denied without prejudice to the filing of a new application or applications therefor at such time as United is ready and able to proceed with proper diligence.

For similar reasons, the fact that United does not propose to go forward with the means of manipulating the Piru, Fillmore, and Santa Paula subbasins to create the required storage space until certain legal impediments are removed or until necessary agreements are consummated with overlying owners, leaving such storage for the indefinite future with no evidence that obstacles to ground water manipulation may be removed within a reasonable time requires denial without prejudice of these elements of Application 12092. It is apparent, however, that the historical charging of the waters of Piru Creek into Piru subbasin by means of Piru Spreading Grounds has not been objected to by the users in the area and consequently storage in Piru subbasin via the spreading works should be authorized to the extent of the historical

diversion of 11,800 acre-feet per annum at a rate of diversion not to exceed 80 cfs.

Also, concerning Application 15145 of United for power purposes at Santa Felicia Dam, the record fails to show that United intends to proceed promptly and diligently with construction of the power plant and application of water to beneficial use. In view thereof Application 15145 should be denied at this time without prejudice to the filing of a new application for power purposes at such time as United is ready and able to proceed with proper diligence. The denial of Application 15145 should not preclude United from a future power project at Santa Felicia, inasmuch as United owns and controls Santa Felicia Dam, Reservoir, and appurtenant works.

Similarly, failure by Calleguas to present evidence of its intent to appropriate water at Cold Spring Reservoir and to utilize a conduit from Tar Creek Diversion Dam to Tierra Rejada Reservoir of capacity in excess of 150 cubic feet per second requires denial of those portions of its applications relating to appropriation at Cold Spring Reservoir and to direct diversion and diversion to off-stream storage in excess of the contemplated capacity of the conduit. This will limit the annual quantity through the conduit into Tierra Rejada Reservoir to 108,600 acre-feet.

Element of the Public Interest

Comparative Water Yields

A comparison of the annual water yields from the Santa Clara River system that would be available under certain combinations of the projects herein described shows that: If United be authorized to proceed with development under its Plan A to the exclusion of Calleguas, the waters annually conserved would be initially limited to about 58,900 acre-feet and under future projects envisioned by United could possibly be increased to about 91,900 acre-feet. If Calleguas be authorized to proceed with its development, the water annually conserved would be initially about 78,500 acre-feet comprising 31,000 acre-feet from the Calleguas Project, 32,500 acre-feet from United's Santa Felicia Reservoir - Lower River Works combination and 15,000 acre-feet historically diverted to Piru and Saticoy Spreading Grounds; and under ultimate conditions the total waters annually conserved might well be about 108,500 acre-feet of which approximately 30,000 acre-feet could be waters conserved by the proposed remaining surface and underground storage potentials.

Upon issuance of permits to Calleguas, United may wish to advance its program for development of Hammel Reservoir to offset the loss of waters that would be available from its Topatopa development. Under these circumstances, if Hammel were operated junior in priority to the Calleguas Project, it appears that there remains for the period of study an average of about 12,400 acre-feet per annum of surplus unappropriated waters in Sespe Creek of which a firm gross yield of about 5,000 acre-feet

per annum could be conserved with a reservoir at Hammel having a capacity of 30,000 acre-feet. The record further indicates that according to the Santa Clara River Valley users' present water requirements and with development of Topatopa Reservoir by Calleguas and the development of the Santa Felicia Reservoir-Lower River Works combination by United there would have remained an average outflow to the ocean of about 44,600 acre-feet per annum for the period of study; and with the addition of Hammel Reservoir the annual outflow to the sea would average about 40,400 acre-feet per annum.

Although with Hammel Reservoir at normal pool elevation of 1140 feet corresponding to a storage level of 30,000 acre-feet, Tar Creek Diversion Dam would be submerged to the extent of 75 feet, there appears to be no physical problem arising from this condition, inasmuch as the major problem would likely be venting the Tar Creek Intake Works and making provisions for measurement of the inflow to Hammel and limiting the diversion to Calleguas in accordance with the conditions of the permit. The responsibility for these modifications should be imposed upon Calleguas. Incidental to Topatopa Reservoir controlling a large portion of the silt load of Sespe Creek would be a corresponding increased life for the active capacity of Hammel Reservoir.

Comparative Benefits

Both Calleguas and the coastal plain portion of United are now subjected to overdrafts on present sources of supply brought about by great demands for urban, agricultural and industrial water. Both areas look to the Santa Clara River water-

shed to supply their most urgent present water requirements and for this purpose there is sufficient unappropriated water of the river system which can be conserved and diverted to the areas of need in the manner proposed by the applicants. Neither area has another dependable water supply available to it although there are open to both possible sources of supplemental water to meet future requirements.

Approval of United's application in its entirety would require rejection of Calleguas' applications. Such action would assure an adequate quantity of water to provide for present supplemental requirements and for expanding use in the coastal plain area for a considerable period of time, although it would not, for reasons hereinafter noted, solve the problem of seawater intrusion nor would it provide all of the water requirements in the United District under conditions of ultimate development. On the other hand, such action would provide no water for the Calleguas District and might well condemn that portion of Ventura County to virtual economic stagnation.

Pleasant Valley even though artificially divided by the two districts overlies a common aquifer to which all overlying owners have common access and correlative rights to the use of the waters therefrom. It would appear unreasonable to expect that water users in the United portion of Pleasant Valley would forego or curtail pumping from the aquifer and use an alternate supply of higher cost while mining of the same aquifer was being continued in the Calleguas portion. To the extent supplemental water supplies were to be introduced into the whole of Pleasant

Valley, the mining and disproportionate use of water from the aquifer could be averted. A means of introducing water to the whole area would be for United and Calleguas to proceed jointly as proposed by Calleguas. This solution having been rejected by United, the sole feasible alternative is to approve separately elements of the applications of both districts.

Concerning the reduction of overdrafts and relief from sea water intrusion in the Fox Canyon and Oxnard Aquifers by reason of the projects proposed herein, the inland pumpers from the aquifers have caused the depressions in pumping levels, creating landward gradients in the pressure surfaces of the aquifers and causing the landward movement of sea water therein with attendant distress along the ocean front. For the inland pumpers to cease or curtail pumping from the aquifers and to use higher cost project waters for the benefit of users on the ocean front without receiving reciprocal benefit does not appear likely. This circumstance suggests that to assure all of the benefits that could arise from furnishing supplemental water to the coastal plain, all pumping must be limited by voluntary mutual agreement or by a court adjudication.

Reference has hereinbefore been made to the obligation of the Board to condition permits in the public interest and to reject those applications which will not best conserve the public interest, citing Sections 1253, 1255 and 1257 of the Water Code and Temescal Water Co. v. Dept. of Public Works (supra, page 17). Section 3 of Article 14 of the Constitution of California requires that "the water resources of the State be put to beneficial use

to the fullest extent of which they are capable and that the waste or unreasonable use or unreasonable method of use of water be prevented," and that the conservation of such waters "be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare." These constitutional declarations are interpreted to mean that when the supply is limited waste should be prohibited to the extent feasible and that the available supply should be utilized as widely as possible. In the Board's opinion these objectives will most nearly be accomplished by according to Calleguas an opportunity to proceed with its project for conservation of a portion of the unappropriated flow of Sespe Creek and diversion thereof for beneficial use in the Calleguas District, and allowing United to construct and operate the remaining features of its application to the extent it proposes to proceed with diligence, leaving for future appropriation the further conservable unappropriated water of the Santa Clara River system at such time as the need therefor justifies its conservation.

The Board concludes from a consideration of the entire record that approval of the Calleguas applications and portions of the United application upon the conditions herein specified will best conserve the public interest and best develop, conserve and utilize in the public interest the waters sought to be appropriated.

Before construction can be commenced on the Calleguas project a number of steps must be undertaken. The Congress must authorize the project, the Feasibility Report must be given final

administrative approval by the Department of Interior, a suitable contract must be negotiated and executed by the Secretary of the Interior and the District, and funds must be appropriated by the Congress. These steps are necessarily time-consuming and their ultimate completion is by no means assured. It is incumbent upon the Board to specify reasonable time within which construction work shall be commenced and completed, and if not, within the time provided or such further time as the Board may allow for good cause shown, the permits must be revoked (See Water Code Sections 1395, 1398, 1410). It is therefore within the power of the Board and is its obligation to require due diligence to be exercised by and on behalf of Calleguas after issuance of permits, including the processing of the Feasibility Report, authorization of the Calleguas Project by the Congress, the negotiation and execution of the required contract, and appropriation of Federal funds, in order that actual construction shall be initiated and completed within the time specified by the Board. Calleguas must assume responsibility for completion of each of these steps within a reasonable time and failure to so complete them, with or without fault by Calleguas itself, will be sufficient grounds for revocation of its permits and a declaration in accordance with Section 1410 of the Water Code that the water is subject to further appropriation.

Since the application of United for a permit to impound waters at Topatopa would be approved but for the Board's determination herein that the Calleguas project when consummated will best conserve the public interest, it appears that that

portion of the United application should not be finally rejected at this time but that action thereon should be deferred until either (1) actual construction of the Calleguas project is diligently completed at which time the stated portion of Application 12092 will be denied, or (2) permits issued to Calleguas are revoked for failure to diligently commence or complete construction within the time allowed by the Board, in which event said portion of the United application will be approved.

Protests and Recommendations
of
California Department of Fish and Game

The Department of Fish and Game presented testimony to demonstrate the damages to fish and fisheries of the Santa Clara River system that is anticipated would be caused by construction and operation of the projects of either or both applicants and proposed special terms and conditions for inclusion in permits that might be issued by the Board (Dept. of Fish & Game Exh. 1). These conditions were not objected to by the applicants, although they stated that they would not expressly agree that the conditions should be attached to the permits. Of the recommended conditions certain are considered applicable to the project features authorized by the permits and will be included in the permits; other conditions are not included either for lack of sufficient information relating to flow requirements for fish life under preproject conditions or for the reason that they relate to matters outside the jurisdiction of the Board to consider and enforce.

In its proposed terms and conditions the Department of Fish and Game requested the Board to retain jurisdiction pending negotiation of agreement with permittees respecting provisions to be made for protection of fish life as a result of construction of Hammel Dam and future diversions at Saticoy. Since there is lacking sufficient information upon which to base specific conditions for protection of fish life, both at these points and also at Topatopa and Tar Creek, further investigations and studies should be conducted and the Board should retain jurisdiction to make such further orders as may be proper. Meanwhile, a general condition requiring release of sufficient of the natural flow past the upstream dams to maintain fish life should be included in the permits.

Amendment of Application 12092

Dilution of ground waters with waters of lower saline concentration is not a proven method of upgrading water quality unless provision is made for control of salt balance by augmenting the exit of saline materials. The method of water quality control proposed by United does not demonstrate by what means the total long-term input of saline materials would be reduced or the exit thereof augmented. However, the proposed exchange of "prior rights" water for "project waters" and the regulation of "prior rights" water by surface storage may prove beneficial to water quality. The amendment of Application 12092 to include "incidental salinity control" as one of the purposes for which the water sought for appropriation is to be used, as requested by United, is approved.

Change of Point of Diversion under Applications 13417, 13417A, and 13418

The Board concludes that no other water user would be injured by change of the point of diversion to storage from Coltrell Dam to Topatopa Dam and that the change should be allowed upon the submission of a proper petition accompanied by necessary supporting maps in conformity to the Board's rules.

Other Issues

A number of legal issues have been presented by the parties in addition to those discussed in this decision. The Board has considered such issues and concludes that either they are without merit or that in view of the disposition herein made it is not necessary to decide them.

O R D E R

Applications 12092, 13417, 13417A, 13418, and 15145 for permits to appropriate unappropriated water having been filed with the former Division of Water Resources, protests having been filed, jurisdiction of the administration of water rights including the subject applications having been subsequently transferred to the State Water Rights Board and a public hearing having been held by the Board and said Board now being fully informed in the premises:

IT IS HEREBY ORDERED that Application 12092 be and the same is hereby approved in part, and that a permit be issued to the applicant, subject to vested rights and to the following terms and conditions, to wit:

1. The amount of water to be appropriated shall be limited to the amount which can be beneficially used and shall not exceed the following:

(a) 100,000 acre-feet per annum from Piru Creek by surface storage in Santa Felicia Reservoir.

(b) 11,800 acre-feet per annum from Piru Creek by underground storage via Piru Spreading Grounds at a rate of diversion thereto not to exceed 80 cubic feet per second.

(c) 30,000 acre-feet per annum from Sespe Creek by surface storage in Hammel Reservoir.

(d) 89,000 acre-feet per annum from Santa Clara River at the Saticoy Headworks by underground storage

at a rate of diversion thereto not to exceed 375 cubic feet per second.

(e) 75 cubic feet per second from Santa Clara River by direct diversion at the Saticoy Headworks; provided, however, that the combined instantaneous rate of diversion under (d) and (e) shall not exceed 375 cubic feet per second.

2. The season of diversion to storage and season of direct diversion under Condition No. 1 shall extend from January 1 to December 31 of each year.

3. The maximum amounts herein stated may be reduced in the license if investigation so warrants.

4. Construction work shall be completed on or before June 1, 1963.

5. Complete application of the water to the proposed uses shall be made on or before June 1, 1968.

6. Insofar as this permit authorizes surface storage in Hammel Reservoir, the same is hereby declared to be junior in priority to permits issued pursuant to Applications 13417, 13417A, and 13418.

7. Those portions of Application 12092 designating diversion from Piru Creek by surface storage in Blue Point Reservoir and diversion from Sespe Creek by surface storage in Cold Spring Reservoir and underground storage, except as provided under Condition No. 1 (b) and (d) are hereby denied without prejudice to the filing of new applications therefor at such time as the applicant is ready and able to

proceed with diligence to construct the necessary works and complete beneficial use of water.

8. All rights and privileges under this permit including method of diversion, method of use and quantity of water diverted are subject to the continuing authority of the State Water Rights Board in accordance with law and in the interest of the public welfare to prevent waste, unreasonable use, unreasonable method of use or unreasonable method of diversion of said water.

9. Permittee shall release water into the channels of the Santa Clara River system past permittee's storage dams and diversion dams in such amounts and at such times and rates as will be sufficient, together with inflow from downstream tributary sources, to supply downstream diversions of the surface flow under vested prior rights substantially to the extent water would have been available for such diversions from flow unregulated by permittee's works, and also sufficient to maintain the natural percolation of water from said channels substantially to the extent percolation would have occurred from flow unregulated by permittee's works.

10. Until further order of the Board, permittee shall make or cause to be made suitable field investigations, measurements, and studies and shall install necessary measuring facilities to determine the amount, timing and rate of releases of water into the channels of the Santa Clara River system in order to fully comply with the

provisions of Condition No. 9 of this permit. Permittee shall submit to the Board with annual progress reports, or at such other times as the Board may require, a report of such investigations, measurements, and studies and the results thereof, including but not limited to the following information:

(a) Daily inflow to Santa Felicia Reservoir and Hammel Reservoir by proper computations of changes in storage.

(b) Daily discharge through and over Santa Felicia Dam and Hammel Dam.

(c) Daily measurements of evaporation, wind movement, precipitation and temperature at one or more stations each at or near Santa Felicia Reservoir and Hammel Reservoir for the purpose of estimating evaporation losses therefrom.

(d) Daily records of discharge of:

Piru Creek immediately below Santa Felicia
Dam outlets and spillway
Piru Creek near Piru
Santa Clara River near Blue Cut
Hopper Creek near Piru
Sespe Creek immediately below Hammel Dam
outlets and spillway
Sespe Creek near Fillmore
Santa Paula Creek near Santa Paula
Santa Clara River at Montalvo Bridge
Diversions at Saticoy Headworks

(e) Monthly surface inflow to Santa Clara River system from ungaged areas between Blue Cut and Montalvo Bridge.

(f) Quarterly water quality analyses of surface and ground waters of the Santa Clara Valley at locations satisfactory to the Board.

(g) Monthly levels of water tables in the Santa Clara Valley at points satisfactory to the Board.

(h) Annual reports of any significant changes in the use of ground water or shifts in water quality within permittee's service area.

Permittee shall make its records of such investigations and measurements available for inspection by the Board and shall allow authorized representatives of the Board reasonable access to its project works and properties for the purpose of gathering information and data, to the extent not inconsistent with national security.

11. For the purpose of maintaining fish life permittee shall provide:

(a) a minimum flow of 5 cubic feet per second or the natural flow of Piru Creek, whichever is less, at all times in Piru Creek immediately below Santa Felicia Dam, and

(b) sufficient water or the natural flow of Sespe Creek, whichever is less, at all times in Sespe Creek immediately below Hammel Dam,

And, except in the event of emergency or other reasonable needs, any change in rates of water discharged from Santa Felicia Reservoir and Hammel Reservoir shall be made

according to the following schedules of change at 2-hour intervals:

Change in flow in cubic feet per second - 5, 10, 20, 40, 80, 160, 260, 360, 460, 560.

12. The Board may, either at the request of interested parties or on its own motion, and shall, prior to the issuance of license, hear, review, and make such further orders as may be required concerning proper releases of water for downstream uses, for recharge of ground water and for maintenance of fish life, and concerning the investigations, measurements, and studies to be conducted by permittee, until a final determination and order can be made as to the amounts, timing and rates of releases of water past permittee's works for said purposes, and the Board retains continuing jurisdiction as long as required to accomplish the foregoing but not to exceed the life of the permit.

13. Action on that portion of Application 12092 designating diversion from Sespe Creek by surface storage in Topatopa Reservoir is hereby deferred until (1) actual construction of the project under permits issued pursuant to Applications 13417, 13417A and 13418 is diligently completed at which time the deferred portion of Application 12092 will be denied, or (2) permits issued pursuant to Applications 13417, 13417A and 13418 are revoked for failure to diligently commence and/or complete construction within the time allowed by the Board, in which event the deferred portion of Application 12092 will be approved.

IT IS FURTHER ORDERED that Applications 13417, 13417A, and 13418 be and the same are hereby approved in part, and that permits be issued to the applicant, subject to vested rights and to the following terms and conditions, to wit:

1. The amount of water to be appropriated shall be limited to the amount which can be beneficially used and shall not exceed the following:

(a) 150,000 acre-feet per annum from Sespe Creek by on-stream storage in Topatopa Reservoir.

(b) 108,600 acre-feet per annum from Sespe Creek at Tar Creek Diversion Dam by off-stream storage in Tierra Rejada Reservoir at a rate of diversion thereto not to exceed 150 cubic feet per second.

(c) 150 cubic feet per second from Sespe Creek by direct diversion at Tar Creek Diversion Dam.

2. The season of diversion to storage and season of direct diversion under Condition No. 1 shall extend from January 1 to December 31 of each year.

3. The total amount of water diverted under any or all of the permits issued pursuant to Applications 13417, 13417A, and 13418, shall not exceed the amount set forth in Condition No. 1.

4. The maximum amounts herein stated may be reduced in the licenses if investigation so warrants.

5. Construction work shall begin on or before June 1, 1963.

6. Said construction work shall be completed on or before June 1, 1968.

7. Complete application of water to the proposed uses shall be made on or before June 1, 1973.

8. Those portions of Applications 13417, 13417A, and 13418, designating storage in Cold Spring Reservoir, off-stream storage in excess of 108,600 acre-feet per annum, diversion to off-stream storage at a rate in excess of 150 cubic feet per second, and direct diversion in excess of 150 cubic feet per second are hereby denied.

9. All rights and privileges under the permits including method of diversion, method of use, and quantity of water diverted are subject to the continuing authority of the State Water Rights Board in accordance with law and in the interest of the public welfare to prevent waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of said water.

10. Permittee shall release water into the channel of Sespe Creek past permittee's storage dam and diversion dam in such amounts and at such times and rates as will be sufficient, together with inflow from downstream tributary sources, to supply downstream diversions of the surface flow under vested prior rights substantially to the extent water would have been available for such diversions from flow unregulated by permittee's

works, and also sufficient to maintain the natural percolation of water from said channels substantially to the extent percolation would have occurred from flow unregulated by permittee's works.

11. Until further order of the Board, permittee shall make or cause to be made suitable field investigations, measurements, and studies and shall install necessary measuring facilities to determine the amount, timing, and rate of releases of water into the channel of Sespe Creek in order to fully comply with the provisions of Condition No. 10 of the permits. Permittee shall submit to the Board with annual progress reports, or at such other times as the Board may require, a report of such investigations, measurements, and studies and the results thereof, including but not limited to the following information:

(a) Daily inflow to Topatopa and Tierra Rejada Reservoirs by proper computations of changes in storage.

(b) Daily discharge through and over Topatopa Dam and Tar Creek Dam.

(c) Daily measurements of evaporation, wind movement, precipitation, and temperature at one or more stations at or near Topatopa Reservoir and Tierra Rejada Reservoir for the purpose of estimating evaporation losses therefrom.

(d) Daily records of discharge of:

Sespe Creek immediately below Topatopa Dam
outlets and spillway.

Tar Creek near mouth

Sespe Creek near Fillmore

Santa Clara River at Montalvo Bridge

Diversion to Sespe conduit

Piru Creek near Piru

Santa Clara River near Blue Cut

Hopper Creek near Piru

Santa Paula Creek near Santa Paula

(e) Monthly surface inflow to Santa Clara River
system from ungaged areas between Blue Cut and Montalvo
Bridge.

(f) Quarterly water quality analyses of surface
and ground waters of the Santa Clara Valley at loca-
tions satisfactory to the Board.

(g) Monthly levels of water tables in the Santa
Clara Valley at points satisfactory to the Board.

(h) Annual reports of any significant changes
in the use of ground water or shifts in water quality
within Santa Clara Valley below Blue Cut.

Permittee shall make its records of such investi-
gations and measurements available for inspection by the
Board and shall allow authorized representatives of the
Board reasonable access to its project works and properties
for the purpose of gathering information and data, to the
extent not inconsistent with national security.

12. For the purpose of maintaining fish life permittee shall provide sufficient water or the natural flow of Sespe Creek, whichever is less, in Sespe Creek immediately below Topatopa Dam and Tar Creek Dam, and except in the event of emergency or other reasonable needs, any change in rates of water discharged from Topatopa Reservoir shall be made according to the following schedule of change at 2-hour intervals:

Change in flow in cubic feet per second -

5, 10, 20, 40, 80, 160, 260, 360, 460, 560.

13. The Board may either at the request of interested parties or on its own motion, and shall, prior to the issuance of license, hear, review, and make such further orders as may be required concerning proper releases of water for downstream uses, for recharge of ground water, and for maintenance of fish life, and concerning the investigations, measurements, and studies to be conducted by permittee, until a final determination and order can be made as to the amounts, timing, and rates of releases of water past permittee's works for said purposes, and the Board retains continuing jurisdiction as long as required to accomplish the foregoing but not to exceed the life of the permits.

14. Permittee shall be responsible for such modifications in Tar Creek Diversion Dam and intake works as may be required by the inundation of said dam and works by Hammel Reservoir.

Applicant shall, within 90 days from the date of issuance of this order, file petitions for such change in point of diversion, supported by the maps required by the Board's rules, to accurately describe the point at which water will be diverted to on-stream storage under the permits, issuance of which will be withheld pending compliance with this condition.

IT IS FURTHER ORDERED that Application 15145 for generation of hydroelectric power be and the same is hereby denied without prejudice to the filing of a new application for the same purpose at such time as the applicant is ready and able to proceed with diligence to construct the necessary works and power plant, and complete beneficial use of water for such purpose.

Adopted as the decision and order of the State Water Rights Board at a meeting duly called and held at Oakland, California, on this 15th day of January, 1958.

/s/ Henry Holsinger

Henry Holsinger, Chairman

/s/ John B. Evans

John B. Evans, Member